Adopted: May 17, 2022

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

AS-943-22

RESOLUTION ON THE CREATION OF A SCHOOL OF APPLIED COMPUTING

Impact on Existing Policy: NONE

1	WHEREAS,	applied computing is an inherently multidisciplinary endeavor,
2		transcending the confines of a single department; and
3		
4	WHEREAS,	"applied computing" shall be defined as the broad range of fields that
5		contribute to the meaningful advancement and application of computing
6		technology, including the design, operation, and implementation of
7		computational technology, regardless of discipline; and
8		
9	WHEREAS,	the creation of a distinct academic unit supporting applied computing
10		provides unique opportunities for coordinated growth, interdisciplinary
11		research and education, and a stronger sense of identity for computing
12		students and faculty; and
13		
14	WHEREAS,	the College of Engineering (CENG) has identified an endowment for
15		creating a collaborative, academic unit residing within CENG called the
16		School of Applied Computing; and
17		
18	WHEREAS,	the founding Departments of the School of Applied Computing are the
19		Computer Engineering, Computer Science and Software Engineering, and
20		Electrical Engineering departments; and
21		
22	WHEREAS,	the mission, vision, and structure of the School of Applied Computing are
23		provided in the attachment to this resolution; and
24		
25	WHEREAS,	the creation of the School of Applied Computing in mission, vision,
26		structure, and name has been overwhelmingly approved and endorsed
27		by the Computer Engineering, Computer Science and Software
28		Engineering, and Electrical Engineering Department faculty, Chairs, and
29		the Dean of the College of Engineering; therefore be it

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31   RESOLVED: the mission, vision, and structure of the School of Applied Computing
32   contained in the attachment to this resolution be adopted, and be it
33   further
34
35   RESOLVED: that the Academic Senate of California Polytechnic State University, San
36   Luis Obispo approve the creation of the School of Applied Computing.

Proposed by: School of Applied Computing Steering Committee

Date: April 19, 2022

A Proposal for a Cal Poly
School of Applied Computing

Ben Hawkins
Electrical Engineering

John Oliver
Computer Engineering

Zachary Peterson[1]
Computer Science and
Software Engineering

School of Applied Computing Steering Committee

Overview

We propose the creation of a new academic unit[2], endowed within the College of Engineering (CENG and called the **School of Applied Computing (SoAC)**, to advance the broad field of computing and its applications at Cal Poly. The School will be founded by three departments within CENG–Computer Engineering (CPE), Computer Science and Software Engineering (CSSE), and Electrical Engineering (EE)–representing the core disciplines in Applied Computing within the College of Engineering from information processing to cyberphysical systems. Overseen by a Director and a Council of stakeholders, the SoAC will fund research and curriculum development projects, support advanced applied computing infrastrastructure, sponsor multidisciplinary and interdepartmental events, and represent Applied Computing disciplines across Cal Poly to the world. These founding departments have a history of interconnected curriculum and a collective expertise in applied computing. Facilitated by the SoAC, they will work together jointly with faculty and students from across the University in Learn by Doing experiences focused on computing and its myriad applications. The School will represent over 2200 students, a population more than 20% larger than the College of Architecture and Environmental Design, and its creation will allow Cal Poly to better serve its educational mission by providing new Learn by Doing opportunities in applied computing for all students, support the professional and personal development of the School's staff and faculty, and advance the field of applied computing through research and scholarship.

The specific benefits of the creation of the School of Applied Computing are manifold and will enrich the entire University, including:

- Advancing educational opportunities in applied computing in multiple departments and colleges

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[1] Committee Chair
[2] As defined by Academic Programs and Planning in:
https://academicprograms.calpoly.edu/content/reorganization-academic-programs-and-academic-units-and-suspension-programs#:~:text=Academic%20unit%3A%20A%20department%2C%20school,home%20for%20an%20academic%20program

- Developing opportunities via funding and infrastructure) for scholarship[3] in applied computing
- Providing cohesive visibility and a distinct, nationwide reputation for Cal Poly in applied computing

Rationale & Benefits

In recent years, computing has grown into a broad discipline that no longer neatly fits within a single department, nor the colleges in which those departments reside. Computing and its associated disciplines are integral to almost every area of science and engineering, and whose value is universal throughout a University. As such, many universities have considered and implemented independent academic structures *i.e.,* a "college" or "school" of computing), consisting of students and faculty to support the advancement of the computing disciplines and provide new opportunities for multidisciplinary research and education. Examples include the MIT Schwarzman College of Computing, the Carnegie Mellon School of Computer Science, the Paul G. Allen School of Computer Science at the University of Washington, and the School of Computing and Design at CSU Monterey Bay.

When considering a similar academic unit at Cal Poly, it is important that we reflect upon the distinct Cal Poly mission[4], and the strengths that differentiate our University: a primary focus on undergraduate education, our Learn by Doing pedagogical approach, and the applied nature of our scholarly pursuits. As such, we envision the creation of a School of *Applied* Computing (SoAC). In contrast to the schools of "Computing" and "Computer Science" being established at other institutions, such as those listed above, the Cal Poly SoAC will be a unique entity that will nurture, unite, and amplify interests and capabilities in applied computing scholarship and will elevate our pedagogy in applied computing through our successful "Learn By Doing" philosophy.

The creation of a School of Applied Computing has the potential to provide Cal Poly myriad opportunities and benefits, including:

Enhanced Opportunities for Multidisciplinary Research. Our opportunity to establish the SoAC as an endowed school presents an impactful set of opportunities to immediately benefit Cal Poly faculty and students engaged in the broad field of applied computing scholarship. It is anticipated that the School will offer funding opportunities for academic year and summer research projects for faculty and students in the School as well as those collaborating on applied computing projects across the University.

The SoAC will serve as an amplifier of existing applied computing research projects, forging cross-campus connections, and seeding the next generation of research ideas. As such, the School will create a nexus on campus for applied computing expertise,

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[3] The term "scholarship" refers to academic and applied research, as well as pedagogical research and curricular development, and industry engagement. It is exclusive of currently existing coursework and curricula.

[4] Defined here: https://academicprograms.calpoly.edu/cal-poly-mission-statement

which eases collaboration between the School's faculty, and better positions the University to respond to and support research projects spanning the University's Departments and Colleges, driving Cal Poly's applied computing activities forward.

Examples of multidisciplinary projects that could benefit from the SoAC:
- High performance computing systems and its applications
- Computer simulations for a wide array of application spaces *e.g.* modeling, design, and optimization problems in circuits, electronics, and power systems; signals, systems, and controls; and networking and communications systems).
- Research and applications in computer entertainment, graphics, and visualization including augmented and artificial reality.
- Applications of artificial intelligence and machine learning *e.g.* computer vision, distributed sensors, robotics, and autonomous systems .
- Research and development of ASIC/SOC systems and next-generation IC devices.
- Internet of Things IoT applications e.g. medical devices, cloud computing, low-power devices).
- Quantum computing including simulation of quantum computers, quantum algorithms, and quantum programming languages.
- Computer security, including intersections with privacy and ethics.

Brand, Identity, and Collaboration. Applied computing crosses boundaries and disciplines, and an SoAC can provide a shared identity and belonging for students, staff, and faculty engaged in applied computing education and research activities, creating a cohesive community and coherent "brand." A clear identity further helps with establishing a distinct nationwide reputation, which can attract the most talented students and faculty to the School. Enhanced faculty recruiting will be a clear benefit in an increasingly competitive talent market. Industry engagement with the School will enable multiple paths for career planning and job opportunities, creating options for each student to find their best vocational fit.

The SoAC will provide a platform for fundraising, attracting and supporting sponsored projects, and creating new opportunities for professional development. Supporting more targeted advancement efforts may lead to enhanced fundraising for applied computing.

The SoAC will also facilitate new opportunities for collaborations and social interactions between the member Departments. Examples include a regular speaker series where affiliated faculty share their current research and interests, "speed dating" events where faculty find new possibilities for collaborative projects, or other social gatherings and celebrations to promote friendship, good will, and camaraderie.

Enhanced Educational Opportunities. The founding departments in the SoAC will be the Computer Engineering (CPE), Computer Science and Software Engineering (CSSE),

and Electrical Engineering (EE) Departments. These three departments have a long history of interconnected curriculum and student/faculty experience around applied computing. Many faculty and instructional staff share joint appointments, facilities are shared, and there is a significant amount of student interest in courses and degree programs offered across the Departments. Additionally, the interdisciplinary nature of applied computing results in an increasing number of students from outside the founding departments interested in taking courses in applied computing topics. An SoAC can work across departmental boundaries to develop new mechanisms for both identifying and satisfying these needs. The SoAC will provide a unique platform for the Departments to explore additional collaborative opportunities with the rest of the University, to introduce unique educational opportunities, and to reduce barriers to student success.

Coordinated curricular efforts could also ameliorate challenges associated with rapidly expanding enrollment. For example, by better management of curricular offerings, and by expanding the variety of courses and educational programs that meet program learning objectives, students can move more swiftly toward completing their educational goals. These actions and more–such as minors and concentrations in applied computing disciplines–provide clear benefits to students and faculty, but present challenges to coordinate without an organizing body and unified voice.

While impractical and unwise to enact all at once, these potential benefits, timed with an opportunity for endowment, makes the creation of the SoAC an extremely promising and felicitous opportunity for Cal Poly, as a whole.

Process to Establish the School of Applied Computing

Establishing a School of Applied Computing has been an on-going, consultative process that has consisted of a variety of reporting and feedback methods including surveys, listening sessions, one-on-one and departmental meetings, and consultation with all members of the three founding departments (Computer Engineering, Computer Science and Software Engineering, and Electrical Engineering), their respective Chairs, the Dean of the College of Engineering, the Engineering Dean's College Council, Engineering faculty/staff at the college-wide meeting, and the Provost-College Deans meetings. Additionally, Dean Fleischer has consulted with and received support from the Provost throughout the process as well as the other academic Deans.

While the idea for a School or College of Computing at Cal Poly (in some form has existed for years prior to this proposal, the initial steps towards the School of Applied Computing as envisioned here were made in early January 2022 when the Dean of the College of Engineering approached the College Council and founding member Departments with the news of an identified donor and potential endowment for the School. Shortly thereafter, this Steering Committee was formed and tasked with creating a mission, vision, and initial structure for the School.

As a first step toward that goal, the Steering Committee conducted surveys of the member Departments to solicit a set of guiding principles and potential activities. The result is a range of ideas, values, and intentions for the School[5]. An initial definition of "applied computing," mission and vision statements, along with this proposal were drafted and shared with constituent faculty. Iterative rounds of consultation were made through Winter Quarter, including a joint listening session held in February virtually) and two in March (in-person). The Steering Committee also made regular reports to the Departments and Chairs throughout Winter Quarter by email and visits to departmental meetings. The Chair of the Steering Committee met weekly with the Dean of the College of Engineering during this same time to both report on the Committee's progress and coordinate on strategy and messaging outside of the College.

A vote on the commitment to support the School of Applied Computing as outlined in this proposal was made by the three founding member Departments in the first week of April 2022. The results were overwhelmingly in favor, with a final tally of 54 in support, and one against.

As we move toward an anticipated resolution by the Academic Senate in Spring 2022, the consultative process will continue particularly with those outside the School and College. Indeed, evolving the mission, vision, and structure to meet the broader Cal Poly community's applied computing needs is a core tenet of the School.

Definition, Mission and Vision

Through its consultative and iterative process, the Steering Committee formulated a definition of applied computing, and the initial mission and vision statement for the School, as follows:

> **Applied Computing.** We define "Applied Computing" in the broadest possible sense, encompassing the broad range of fields–from information processing to cyberphysical systems–that contribute to the meaningful advancement and application of computing technology. This includes the design, operation, and implementation of computational technology, regardless of discipline.

> **Mission.** The School of Applied Computing's mission is to positively transform the application of computing at Cal Poly and beyond. This will be achieved through the continuous and collaborative development of a modern and interdisciplinary curriculum and innovative research initiatives that reflect the values of equity, ethics, and excellence. The School of Applied Computing fosters a collaborative and inclusive community of faculty, staff, and students working together to make a positive, real-world impact and lead the University in its applied computing endeavors.

> **Vision.** We envision the School of Applied Computing becoming a recognized and enduring entity of high quality education and research in the broad disciplines of Applied

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[5] Summaries of the data collected are available at:
https://drive.google.com/drive/folders/1cjiNzG3h2GobG1haqQmhwhK8WWVNXCPt?usp=sharing

Computing. We will be a leading and inclusive School that supports a diverse community of faculty, staff, and students, working together to advance the discipline of Computing and its applications, and ensuring their long term professional success and personal growth. We strive to provide all students with the best possible applied computing education, achieved through a modern, equitable, and inclusive curriculum, access to state-of-the-art computing facilities, and through multidisciplinary projects and faculty research, that, in combination, will contribute to their intellectual growth and a conscientious approach to computing.

Structure of the School of Applied Computing

The creation of the SoAC will yield a net gain in resources and opportunities for the member Departments, the College of Engineering, and the University. The following describes the structure of the SoAC in its initial incarnation.

It is important to note, however, that while the creation of the School of Applied Computing will have significant formative impact on Cal Poly, nearly all aspects of the existing Departmental autonomy and College structure will remain unchanged. These include the retention, promotion, and tenure (RPT) process, hiring of faculty and lecturers, curricular control, and accreditation.

Director

The SoAC will be led by the Director of the SoAC. The Director is responsible for executing the mission and vision of the SoAC, including evolving the mission and vision of the SoAC as necessary. Other responsibilities include, but not limited to:

- Develop and solely administer the School of Applied Computing budget, including allocation and disbursement of grant and scholarship funds, purchased infrastructure, renovations, and the like.
- Consult with the SoAC Council and member Department Chairs to coordinate funding efforts, including balancing teaching capacity/release time, scholarships, and startup packages.
- Identify new funding mechanisms and establish policies and procedures for funding applications, including overseeing the process and criteria for accepting and evaluating grant proposals and scholarships.
- Define needs for future philanthropic support in partnership with the member Department Chairs and work with the College of Engineering development team to create a plan to address these needs.
- Assist member Departments to expand their computing capacity through new infrastructure, staffing, and industry/government partnerships.
- Manage staff employed by the SoAC.
- Solicit counsel from industry partners through, for example, the formation of an SoAC Industry Advisory Board.

This list is meant to be exemplary, and not exhaustive. As the School evolves and grows, additional or alternative responsibilities for the Director should be considered.

The Director position is envisioned as an MPP-level employee with a renewable five-year term with all expenses compensated through the SoAC endowment. It is expected that the Director will have faculty leadership experience and will have retreat rights to a member Department. The Director serves at the pleasure of the President, Provost, and Dean of the College of Engineering, and is evaluated on a yearly basis. As part of the evaluation process the Dean will consult with the SoAC Council where their assessment of the Director's performance will be integrated into decisions on continued service.

The SoAC member Department Chairs will continue to report directly to the Dean of the College of Engineering but are envisioned to additionally have a "dotted line[6]" reporting structure to the SoAC Director. The Dean of the College of Engineering will continue to work with the Chairs on all typical Department governance issues. The member Department Chairs will remain full members of the College Council, directly representing their Department's needs and interests in College-level strategic initiatives. Additionally, the member Department Chairs will report with a "dotted line" to the SoAC Director only on common priorities for all member Departments, which may include topics such as prioritization and disbursement of endowment funds, scholarship awards, joint development opportunities, management of shared space, developing "zoned admissions" or other common academic experiences, planning a joint SoAC "Open House," and similar activities.

Any SoAC Director will be nominated and hired through a search defined by the SoAC Council. However, if determined advantageous, an Interim Director of the SoAC could be identified by application or by nomination from the faculty of the member Departments and appointed by the Dean of the College of Engineering.

School of Applied Computing Council

The School's mission and vision will be executed by the Director, with support and advice from the School of Applied Computing Council. The initial SoAC Council shall consist of:

- Two faculty representatives from each member Department, nominated and appointed by and representing their respective Departments.
- Two affiliate faculty members, initially to be held by two faculty from the Statistics Department.
- Students from the member or affiliate Departments, the number, nomination process, and responsibilities of which will be determined at a later time[7].

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[6] Here, "dotted line" refers to an informal, but no less important, reporting relationship, allowing Chairs and the Director joint accountability for decisions made by and for the SoAC.

[7] The inclusion of a diverse set of student voices on the SoAC Council is extremely important to our students' experience and belonging within the School. However, we also believe the implementation of the process for nomination, eligibility requirements, term limits, and other procedural issues related to

Alternative Council membership and structure should be considered to meet the evolving needs of the School. For example, as the School, and its affiliate membership grows, the number of external representatives may also grow, and their selection process may change.
The SoAC Council shall have responsibilities that primarily include:

- Conducting the search and nomination of the Director of the SoAC.
- Establishing and maintaining the bylaws of the School of Applied Computing.
- Providing support and consultation for the Director of the SoAC in developing and implementing activities consistent with its stated mission and equally representing member departments.
- Reviewing and revising the mission and vision of the SoAC on a five year cycle.

We expect many of the details relating to specific organizational structure and governance of the School of Applied Computing to be codified by the Director, in consultation with the SoAC Council.

Additional Staff

The budget will also include limited funding for a full-time administrator, who will be given duties that align with the mission of the School, and may support collaborative administrative needs and event coordination within the member Departments as appropriate. Such tasks may also include assistance with purchasing, budgeting, and grant administration.

Founding and Member Departments

Member departments of the SoAC will have a strong influence over the directions and practices of the SoAC. In exchange, member departments are expected to provide service to the SoAC. For example, each member Department will have two faculty members serve on the SoAC Council. Other service requirements will be negotiated between the Director of the SoAC and the respective department chairs.

At the time of creation, the School of Applied Computing will have three founding departments: Computer Engineering, Computer Science and Software Engineering, and Electrical Engineering. In the future, it will be possible that additional departments may apply to join the founding departments to become member departments of the SoAC. The mechanism for member application and evaluation will ultimately be determined and implemented by the SoAC Director and Council, but an initial path to affiliation is outlined in Affiliation and Membership below.

Affiliates

Any individual Cal Poly faculty member or programs may become affiliated with the SoAC. Affiliates will be kept aware of the activities of the SoAC and be offered opportunities to

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student participation on the SoAC Council to be beyond the scope of this proposal, and instead should be left to the SoAC Director and the other members of the SoAC Council.

participate with the SoAC. Growing a vibrant and diverse list of affiliate faculty is a key goal of the SoAC. As an example, including the Liberal Arts and Engineering Studies as an affiliate program highlights the interdisciplinary and inclusive mission of the School. Benefits of affiliation may include:

- Help contribute and define the SoAC.
- Inclusion on internal SoAC-wide communications and events.
- Invitation to review faculty grant proposals.
- Invitation to participate in scholarship award processes.

Affiliation and Membership

The SoAC Director, in partnership with the SoAC Council, will ultimately define a detailed process for interested faculty, programs, or departments to become Affiliates or Members of the SoAC. However, we expect that expanding the School's affiliations will be an early and high priority for the SoAC. As such, we provide an initial sample set of requirements that could provide an expedient pathway to affiliation and membership.

The process by which individual faculty seeking Affiliate status within the SoAC shall include the following:

1. Submission of an application containing the following materials:
   a. A proposal documenting the applicant's relationship to the field of Applied Computing and any previous or potential research, scholarship, and creative activities in the same area.
   b. A letter of support from the applicant's department Chair or Head and Dean.
2. SoAC Council and Director review application materials and make a determination.

The process by which or programs or departments seeking Membership in the SoAC shall include the following:

1. Submission of an application that:
   a. Provides background on the departmental field, discipline, or subdiscipline that engages in Applied Computing, as broadly defined in the SoAC Mission and Vision.
   b. Identifies and provides evidence of a significant portion of constituent faculty who engage in research, scholarship, and creative activities related to Applied Computing, as broadly defined in the SoAC Mission and Vision.
   c. Documents broad support from the department's faculty, staff, and/or advisory board members.
   d. Includes a letter of support from the department's respective Dean and Chair.
2. SoAC Council and Director review application materials and make a determination.

3. Pursue proposal and approvals, as needed and if necessary, within the Academic Senate as per the Office of Academic Programs and Planning policy on academic program reorganization proscribes.

We acknowledge and expect this process to be further codified, expanded, and modified as needed by the Director and SoAC Council.

Budget and Activities

The budget of the SoAC will be under the sole oversight of the Director, who will control both the initiatives and allocation of funds from the proceeds of the endowment. Endowment funds will be broadly used in support of the SoAC, but are not intended to be used to support tenure-track faculty lines. Sample opportunities for support include:

- Start-up packages for faculty recruiting.
- Establishing or renewing laboratories and equipment.
- Release time for faculty mentoring student research.
- Release time for new academic program development.
- Faculty and student stipends for summer research.
- Undergraduate student scholarships.
- Graduate student and post-doctoral scholar stipends.
- Sponsoring computing related events, including speaker series, colloquia, and social events.
- Director and administrative position support.

Space

Initial space requirements for the creation of the SoAC are minimal. The founding Departments have existing office, teaching, and lab space, which will remain unaffected by the creation of the School. An office for the Director and their staff will be provided by the College of Engineering. As the School grows, in size and in mandate, the School, in coordination with the College of Engineering and the University, will leverage the founding of the school to obtain funds to create space to support burgeoning initiatives.

Appendix A: Response to Executive Committee

We thank the Executive Committee for their thoughtful response to our initial proposal, dated April 22, 2022. We repeat and address the three, overarching concerns identified by the Committee, as follows:

1. **If any department shares a program with EE, CSSE, or CPE, the proposal provide documentation these departments were consulted.**
2. **The results of the ongoing cross-college consultation be completed and documented as part of the proposal package.**

We followed the Executive Committee's guidance, and made a fervent effort to dialogue with those departments and faculty most greatly affected by the formation of the SoAC, in particular those that share faculty or degree programs. A timeline and summary of these consultations follows:

4/26/2022:	Kevin Lertwachara (Information Systems, OCOB): Professor of Management, HR, and Information Systems
4/26/2022:	Statistics Department (COSAM
4/26/2022:	Ashley McDonald (Chemistry, COSAM): Theoretical and Computational Chemistry
4/28/2022:	Mathematics Department (COSAM
5/2/2022:	David Gillette (English, CLA): Co-Director, Liberal Arts and Engineering Studies Program
5/3/2022:	Eduardo Zambrano (Economics, OCOB): Director of the Masters in Quantitative Economics.
5/5/2022:	Enrica Lovaglio Costello (Art and Design, CLA): Art Advisor for the Computing for the Interactive Arts Minor.
5/5/2022:	Jean Davidson (Biological Sciences, COSAM), Paul Anderson (Computer Science, CENG): Representatives for the Bioinformatics Minor.

Nearly all faculty and departments with which we met are strongly supportive of the formation of the School of Applied Computing, and are curious on how to best leverage the School to achieve interdisciplinary research and education goals. As examples, Professor Zambrano showed interest in expanding computing courses for ECON students, as well as team-teaching opportunities within the School. Similar queries were posed when meeting with the Mathematics Department. Professors Gillette and Lovaglio Costello expressed tremendous support for the continued development of the interdisciplinary applied computing programs and projects. Letters of support from Profs. Zambrano and Lovaglio Costello echoing these sentiments are attached.

Of note: while largely supportive, the Statistics Department expressed the most concern, and highlighted how the SoAC, in its current incarnation, could negatively impact their department in

at least two ways. First, is an expression of frustration with the lack of explicit inclusion of their department in the SoAC, both in conception and in initial consultation, particularly in light of their valuable contributions to the field of applied computing at Cal Poly through Data Science. Second, is the concern that a School of Applied Computing that does not include Statistics, and in particular the Data Science program and affiliated faculty, both confuses and dilutes the "computing" brand at Cal Poly, especially when one considers the carefully cultivated identity of the Statistics Department as a nexus of data science initiatives and expertise, and thus potentially harming the recruitment of faculty, students, and staff (among other unforeseen problems).

The Steering Committee fully acknowledges and empathizes with these frustrations and concerns, particularly in the light of the long, positive, and collaborative history the member departments have (and hope to continue to have) with Statistics. Amendments to this proposal directly addressing these concerns are detailed below.

In addition to the work done by the Steering Committee in direct consultation with faculty and departments, the Dean of the College of Engineering has also been very active in consultation both within the college and with Academic Affairs leadership. Dean Fleischer has had numerous consultations with Department Chairs, other College Deans, her Advisory Council, the Provost, and the President. As evidence of support, we attach to this amended proposal letters of support from all of the College Deans. A detailed schedule of Dean Fliescher's consultation follows:

1/4/22:	Presentation to CENG College Council
1/4/22:	CSSE department meeting
1/4/22:	EE Department meeting
1/6/22:	CPE Department meeting
1/10/22:	EE, CPE, CSSE Chairs
1/11/22:	CENG College Council
1/21/22:	Provost Jackson-Elmoore
1/24/22:	CENG College Council
2/15/22:	CENG College Council
2/18/22:	EE, CPE, CSSE Chairs
3/1/22:	Full presentation to CENG College Council
3/3/22:	Provost-College Dean's Council
3/9/22:	Dean Wendt
3/14/22:	CENG College Council
3/16/22:	EE, CPE, CSSE Chairs
3/17/22:	CENG all-college faculty/staff meeting
3/17/22:	Provost-College Dean's Council
3/21/22:	EE, CPE, CSSE Chairs
3/25/22:	Provost Jackson-Elmoore
3/29/22:	EE, CPE, CSSE Chairs

5/5/22:   Andrew Schaffner, Statistics
5/6/22:   CENG Dean's Advisory Council

3. Based on the collaborative language in the proposal, the EC feels other departments and affiliate faculty across the university should have a clear pathway to join the SoAC in the future.

Broad inclusion of a diverse set of affiliate faculty from across the University and the support of multidisciplinary efforts are at the heart of the mission and vision of the School of Applied Computing. Indeed, we would consider this effort a failure should it manifest otherwise.

To this end, this proposal has been amended to **make pathways for participation clear and immediate**. The specific changes include incorporating the suggested language provided by the Executive Committee *viz.* Section 3.1.1 Executive Committee of the Academic Senate Report: School of Applied Computing). Further, we have added a new section to the Proposal entitled [Affiliation and Membership](#) that outlines an initial process for affiliation or membership within the SoAC. While a full criteria and process will be codified by the SoAC Director and Council, we believe we provide enough structure to allow for the possibility of immediate affiliation for interested faculty.

Further, to acknowledge the strong, pre-existing relationship the founding member Departments have with the Statistics Department (in particular, in offering the interdisciplinary Data Science minor), we have amended this proposal to initially **assign the two affiliate seats on the SoAC Council to members of the Statistics Department** as per their own nomination and appointment process). Statistics has always been a valuable and obvious candidate for affiliation with the School. Assigning Statistics both affiliate seats recognizes the importance of the relationship of Statistics to the School, and serves to amplify their voice in shaping the School's direction and implementation from the onset. This action follows the recommendation of Dean Wendt as per his letter of support, and will help ameliorate some of the concerns identified during our consultation. There are inherent challenges in any reorganization, and growing too fast, too quickly–particularly with cross-College departments and reporting structures–adds significant complexity. Thus, the School is initially proposed as a reorganization under the College of Engineering, with clear and direct reporting lines through the same. As the School grows, a clearer path for future and more direct involvement will be established by the SoAC Council and Director.

Preamble:

As advised by the Chair of the Academic Senate and Provost's Office, and guided by procedures outlined on the Academic Programs and Planning website (APP1), on April 19, 2022 the Chair of the School of Applied Computing (SoAC) Steering Committee presented a proposal to create a SoAC in the College of Engineering (CENG) to the Executive Committee (EC) of the Academic Senate (AS). As per APP1, "Items" (e.g. 2A, 2B, etc.) refer to specific elements of the reorganization procedure.

Presented with the proposal, the EC is charged with preparing a report and indicating if the EC agrees the proposal is "non-contentious." If the EC does not agree the proposal is "non-contentious," and requires more information than Items 2A and 2B, it is to label the proposal "contentious." As per APP1, these designations determine the pathway to agendizing the proposal to the floor of the Academic Senate (AS).

The EC discussed this matter in closed session on April 19, 2022.

In the proposal, the "affected departments/programs" and "affected faculty" refer to the Electrical Engineering (EE), Computer Science and Software Engineering (CSSE), and Computer Engineering (CPE) Programs.

Report:

The EC thanks the SoAC Steering Committee and collaborators for the proposal. We acknowledge that considerable work has gone into this process, and we thank all the stakeholders for their thoughtful and substantive efforts.

While the proposal has non-contentious aspects, the EC feels the proposal requires additional information that must be addressed before it is presented to the Academic Senate, so it cannot be formally labeled "non-contentious" according to the language of APP1. **In summary, while the proposers consulted extensively within CENG, the proposers did not consult all affected departments, programs, and faculty across the university. As a result, the proposal requires more evidence of transparent cross-college consultation.**

In that light, the EC would like to offer two paths forward. The EC advocates for the Flexible Pathway ("A" below, also see the attached flowchart) to allow for additional information gathering while still providing a timely path to the AS floor:

A. Flexible Pathway: If the following information under Proposal Addenda is provided to augment the current proposal, and the EC is satisfied all elements of the request were provided, the proposal can be agendized as a resolution to the AS in First Reading during the Spring of 2022 on the Flexible Timeline outlined below. This augmented proposal would then be included as supplemental material in the resolution as presented to the AS.

B. <u>Formal Contentious Pathway</u>: If the Flexible Pathway above is not agreeable, the last Information to EC deadline is missed on the Flexible Timeline, or the augmented proposal is still incomplete as viewed by the EC, the EC must label the proposal "contentious" in a formal sense based on the language of APP1 and will follow the Formal Contentious Pathway as outlined in Item 4 on APP1. The proposers may also choose to select the Formal Contentious Pathway directly by the Information to EC deadline on the Flexible Timeline.

Proposal Addenda:

"Items" refer to the elements in APP1:

1. **Item 2A**: APP1 states, "A proposal for the reorganization of an academic program or unit should be preceded by a full and open discussion with faculty members and staff in affected academic programs or units about the proposed changes." The EC is concerned departments other than EE, CPE, and CSSE fall under the rubric of "affected programs and departments" and may be impacted by this proposed reorganization.
   1.1. **If any department shares a program with EE, CSSE, or CPE, the proposal provide documentation these departments were consulted.**
      1.1.1. For example, Statistics and CSSE share a program (CDSM Data) and so arguably Statistics should have been consulted as members of the "affected programs/faculty."
2. **Item 2L:** APP1 states, "Acknowledgement of the proposal from the relevant dean(s) and relevant Chair(s)/Head(s)/Director(s)". Because of the broad scope and reach of the proposal, the EC views "the relevant dean(s) and relevant Chairs(s)/Head(s)/Director(s)" to be university-wide.
   2.1. The proposal states: "As we move toward an anticipated resolution by the Academic Senate in Spring 2022, the consultative process will continue particularly with those outside the School and College."
      2.1.1. **The results of the ongoing cross-college consultation be completed and documented as part of the proposal package.**
         2.1.1.1. For example, programs on campus such as Information Systems (MHRIS department), the MS in Business Analytics, and Quantitative Economics should have been consulted because of overlapping interests with the SoAC.
3. The proposal states: "In the future, it may be possible that additional departments may apply to join the founding departments to become member departments of the SoAC. The mechanism for member application and evaluation will be determined by the SoAC Director and Council."
   3.1. **Based on the collaborative language in the proposal, the EC feels other departments and affiliate faculty across the university should have a clear pathway to join the SoAC in the future.**
      3.1.1. **The EC suggests the proposal use language:** "In the future, it <u>will</u> be possible for additional departments and affiliate faculty across the university to join the founding departments to become members of the SoAC. The mechanism for member application and evaluation will be determined by the SoAC Director and Council."

Flexible Timeline (Spring 2022):

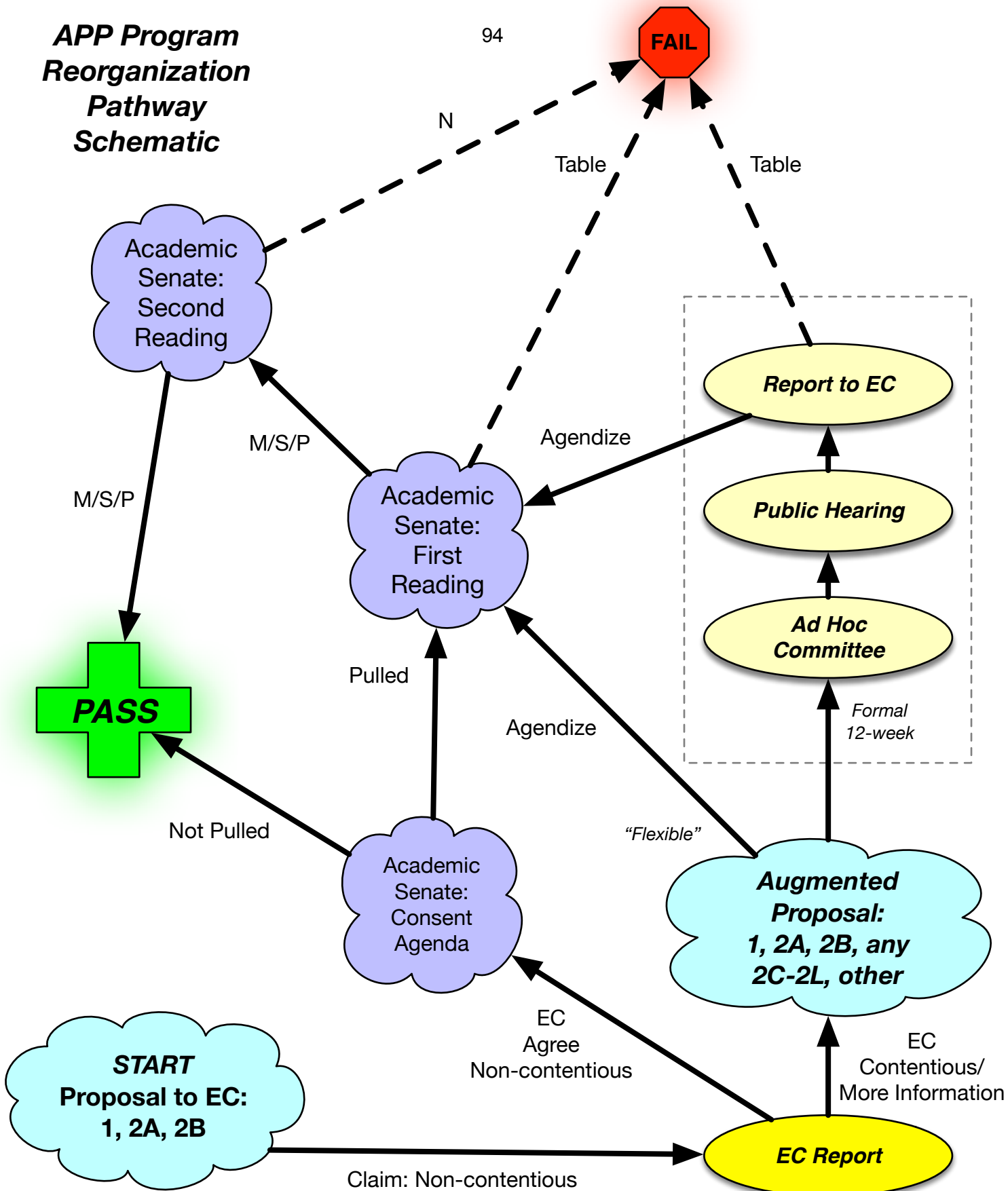| *Information to EC*	*Earliest Agendized to AS*	*Earliest AS First Reading*
T April 26	R April 28	T May 3
T May 10	R May 12	T May 17
T May 17	R May 19	T May 24

Note: The trajectory to Second Reading cannot be guaranteed and is based on the parliamentary procedures of the AS and subject to uncertainty. Past practice of the AS dictates if a resolution on the senate floor is not adopted by the final AS meeting of the academic year (May 31, 2022), the resolution will need to be re-agendized by the EC into the AS for the following academic year (AY2022-2023 in the Fall of 2022).

Reference:

APP1: https://academicprograms.calpoly.edu/content/reorganization-academic-programs-and-academic-units-and-suspension-programs

AS-715-10

APP Program Reorganization Pathway Schematic

94

FAIL

PASS

Academic Senate: Second Reading

Academic Senate: First Reading

Academic Senate: Consent Agenda

Report to EC

Public Hearing

Ad Hoc Committee

Formal 12-week

Augmented Proposal: 1, 2A, 2B, any 2C-2L, other

"Flexible"

START Proposal to EC: 1, 2A, 2B

EC Report

N

Table

Table

M/S/P

M/S/P

Agendize

Pulled

Agendize

Not Pulled

EC Agree Non-contentious

EC Contentious/ More Information

Claim: Non-contentious

TDG Spring 2021

From: Damon M. Fleming <dmf@calpoly.edu>
Sent: Monday, May 2, 2022 10:29 AM
To: Amy Spencer Fleischer <afleisch@calpoly.edu>
Subject: Re: Proposal for Cal Poly School of Applied Computing

Hi Amy:

I fully support the proposal for the School of Applied Computing.

Please let me know your questions.

Respect,
Damon

Damon M. Fleming, PhD, CFA
Dean and Professor of Accounting
Orfalea College of Business
California Polytechnic State University
Email: dmf@calpoly.edu

From: Philip J. Williams <pjw@calpoly.edu>
Sent: Friday, April 22, 2022 2:53 PM
To: Amy Spencer Fleischer <afleisch@calpoly.edu>
Subject: RE: Proposal for Cal Poly School of Applied Computing

Hi Amy,
I support the proposal.
Best,

Philip J. Williams
Dean
College of Liberal Arts
Cal Poly, San Luis Obispo, CA
pronouns *he/him/his*

office (805) 756-2706
www.calpoly.edu
cla.calpoly.edu
Twitter: @pjwilliams59

From: Christine Theodoropoulos <theo@calpoly.edu>
Sent: Monday, May 2, 2022 1:40 PM
To: Amy Spencer Fleischer <afleisch@calpoly.edu>
Subject: Re: Proposal for Cal Poly School of Applied Computing

Amy,

Sorry not to get back to you sooner. Yes, I support the formation of a School of Applied Computing within CENG.

Christine

From: Dean E. Wendt <dwendt@calpoly.edu>
Sent: Tuesday, May 3, 2022 12:58 PM
To: Amy Spencer Fleischer <afleisch@calpoly.edu>
Subject: Re: Proposal for Cal Poly School of Applied Computing

Hi Amy,

I support the proposal with the recommendation that the Statistics Department have an explicit and ongoing position as part of the SoAC Council. It will be important that they participate in discussions of curriculum, particularly as it relates to Data Science at Cal Poly.

Best, dew

Dean E. Wendt
pronouns he/him/his
Dean, College of Science and Mathematics
California Polytechnic State University
San Luis Obispo, CA 93407
805-756-1619

From: Andy Thulin <athulin@calpoly.edu>
Sent: Wednesday, May 4, 2022 8:38 AM
To: Amy Spencer Fleischer <afleisch@calpoly.edu>
Cc: Haley Marconett <hmarcone@calpoly.edu>
Subject: Re: Proposal for Cal Poly School of Applied Computing

I support the proposal.

Andy

Andrew J. Thulin, Ph.D.
Dean
College of Agriculture, Food and Environmental Sciences
Cal Poly, San Luis Obispo, CA

office 805-756-2161
cafes.calpoly.edu

From: **Enrica Lovaglio Costello** elovagli@calpoly.edu
Subject: **In support of the School of Applied Computing**
Date: **May 8, 2022 at 2:07 PM**
To: **Zachary N.J. Peterson** znjp@calpoly.edu
Cc: **Zoe J. Wood** zwood@calpoly.edu, **Christian Eckhardt** eckhardt@calpoly.edu, **April Marie Grow** amgrow@calpoly.edu

Dear Prof. Peterson,

Thank you for meeting with me regarding the School of Applied Computing (SoAC).
In this email, I would love to briefly illustrate the last decade of collaboration between the Art and Design department and the Computer Science department because it shows how much SoAC is needed to support such efforts allowing faculty and students from diverse disciplines across campus to exist and thrive.

In 2011, I began collaborating with computer science (CSC) Prof. Zoë Wood both through classes (her engineering students and my art students building projects together) and professional research (peer-reviewed papers and conferences). While working together, we became committed to creating a formalized joint CSC+Art program with the added goal of breaking gender barriers in a largely male-dominated computer science department (24% female students) and predominantly female-dominated art department (26% male students). After only six years of existence, the Computing for the Interactive Arts minor (CIA is a new format of minors only open for CSC and Art majors) boasts 48% of female participation among the computing majors.
The CIA minor curriculum focuses on creating a collaborative, cross-disciplinary environment in which Art and Design students integrate coding and algorithmic thinking in creative works and Computer Science students apply the principles and methodology of design thinking to visual applications. During a two-quarter-long capstone project, teams of students from mixed educational backgrounds work together to make a final creative, technical project.

Over the years, the computer science department hired Prof. Christian Eckhardt and Prof. April Grow, who joined Zoë and me in teaching the CIA classes.
The achievements resulting from our collaboration have been many: Christian, and I have applied and obtained grants together; Zoë and I continue to publish together; our students' CIA capstone projects were featured in peer-reviewed journals and conferences; our CIA alumni routinely send job opportunities for current CIA students and speak in our classes. While the CIA community has been growing, faculty are now stretched thin, often on the cusp of running out of time and energies to dedicate to CIA.
New hires, such as Jhon Bueno Vesga in CSC, who researches, as I do, the use of virtual reality for pedagogical strategies, for me present new opportunities for joint research that can lead to publications, enrichment inside the classrooms, and prestigious grants.
To continue, we need support as we are nearing the point of running out of resources; we need the School of Applied Computing.

I want to express my deep appreciation for your leadership and commitment to creating SoAC. Please do not hesitate to reach out if there is anything I can do to contribute to this effort. SoAc's creation will benefit the entire university, especially in reaching the levels of diversity and inclusion that Cal Poly so desperately needs.

Thank you

Enrica Lovaglio Costello (she, her)
Professor in Digital Media, Art and Design department, Cal Poly
(805) 215 8998
elovagli@calpoly.edu

CAL POLY

MEMORANDUM

5/9/2022

TO:	Tom Gutierrez, Academic Senate, Chair
FROM:	Andrew Schaffner, Statistics Department, Chair
COPIES:	Dean Wendt, COSAM, Dean;
	Amy Fleischer, CENG, Dean;
	Sarah Best, Academic Senate Coordinator;
	Academic Senate Executive Committee Members
SUBJECT:	Proposal for the School of Applied Computing

On April 26, 2022 Zach Peterson (with John Oliver and Ben Hawkins) presented a proposal for the School of Applied Computing to the Statistics Department. At our next available department meeting (May 3, 2022), the department met to discuss the proposal internally. Andrew Schaffner later debriefed the departmental meeting with Zach Peterson and on Thursday, May 5, met with Amy Fleisher and Zach Peterson to discuss the Statistics Department position on the School.

At the May 3 department meeting, the faculty of the Statistics Department voted to conditionally support the proposal for a School of Applied Computing provided the Statistics Department was an equal departmental member in the School at its inception. We recognized that the provided proposal contains language that allows for broader inclusion in multiple ways: via two affiliate member seats on the SoAC council determined by the Director, and through possible future departmental inclusion using a yet to be determined process. Unfortunately, these pathways to membership that we reviewed provided no guarantee of our participation in the leadership or direct benefits of the school. The affiliate seats may be given to any affiliate faculty across campus and are also subject to selection by a yet unknown Director. Further, for department membership, it is yet to be determined if and how departments outside of CENG could be a member of a School that resides in CENG. Policy on these matters is not clear and requires development on the campus level.

To further support our reasoning for strongly requesting inclusion, we'd like to remind you that Computer Science and Statistics was a single department in the College of Science and Mathematics in the mid 1980's. Finding a shared umbrella to work together now is sensible much in the same way it is used to sensibly rejoin the recently split departments of Computer Science and Computer Engineering. Statistics (and Data Science) has been and continues to be an applied computing discipline. It is essentially impossible to parse, manipulate, visualize, and model data without extensive computing/coding. Computing is pervasive in our curriculum. All our varied methods courses (shown below) are heavily computational with most requiring coding in R, SAS, and for our newer shared DATA courses, Python. Many of these are courses required in the Cross-Disciplinary Studies Minor in Data Science, a program we share with Computer Science. Many of these courses are included in an interdisciplinary BS in Data Science proposal (under development) to be proposed jointly by faculty in mathematics, statistics, and computer science. Should the Statistics Department be excluded from the school, we would object to the name "School of Applied Computing" as it does not represent all of the applied computing departments represented on campus. In that case we would suggest a more narrow name that better reflects the participating departments.

- STAT 305: Introduction to Probability and Simulation
- STAT 323: Design of Experiments I
- STAT 324: Applied Regression Analysis
- STAT 334: Applied Linear Models

- STAT 330: Statistical Computing with SAS
- STAT 331: Statistical Computing with R
- STAT 405: Applied Probability Models
- STAT 414: Multilevel and Mixed Modeling

CAL POLY

- STAT 415: Bayesian Reasoning and Methods
- STAT 416: Statistical Analysis of Time Series
- STAT 417: Survival Analysis Methods
- STAT 418: Categorical Data Analysis
- STAT 419: Applied Multivariate Statistics
- STAT 423: Design of Experiments II
- STAT 431: Advanced Statistical Computing with R
- STAT 434: Statistical Learning: Methods and Applications

- STAT 440: SAS Certification Preparation
- STAT 441: Advanced SAS Certification
- DATA 301: Introduction to Data Science
- DATA 402: Mathematical Foundations of Data Science
- DATA 403: Data Science Projects Laboratory
- DATA 451/2: Data Science Capstone I/II

To address the department's concerns regarding inclusion, Dean Fleisher has offered the two affiliate seats on the Council to the Statistics Department at inception. As noted above, these seats do not constitute full membership for our department nor permanent seats on the Council, but we do appreciate the inclusion and the ability to more directly support the mission and values of the School as well as share in its benefits. We also look forward to continuing our collegial relations with Computer Science. Our faculty enjoy teaching a shared curriculum, jointly presenting at conferences, and even administratively working together to ensure mutual scheduling of courses and providing seats to our partners to ensure timely degree progress in our majors and our joint CDSM minor.

We look forward to more formal inclusion in the future and hope that permanent seats for full department inclusion will be possible. A School of Applied Computing without Statistics Department membership may be damaging to our department and programs. The proposal makes note of the value of "Brand, Identity, and Collaboration." We recognize this as well. If we were to be excluded, it may send wrong signals to prospective students, faculty, and staff. Our exclusion might imply that we are a theoretical program or that we do not engage in statistical computing and data science. Not being part of the brand would not only deny us the advantages of the brand but may actually cast a shadow on our department and programs. We appreciate Dean Fleischer's recognition of this ongoing partnership, responsiveness to our concerns, and gestures towards greater inclusion.

From: Amy Spencer Fleischer afleisch@calpoly.edu
Subject: FW: STAT memo for SoAC
Date: May 10, 2022 at 9:05 AM
To: Zachary N.J. Peterson znjp@calpoly.edu, Ben Hawkins bghawkin@calpoly.edu, John Y. Oliver jyoliver@calpoly.edu

FYI – nice work.
Amy

Amy S. Fleischer, PhD (She/her/hers)
Dean, College of Engineering
California Polytechnic State University
San Luis Obispo, CA
805 756-2131
Instagram: dramyfleischer
Twitter: @amyfleischer
LinkedIn: Amy Fleischer

Cal Poly is in tilhini, the Place of the Full Moon. We gratefully acknowledge, respect, and thank yak tityu tityu yak tilhini, Northern Chumash Tribe of San Luis Obispo County and Region, in whose homelands we are guests.

From: Andrew A. Schaffner <aschaffn@calpoly.edu>
Sent: Tuesday, May 10, 2022 8:54 AM
To: Thomas D. Gutierrez <tdgutier@calpoly.edu>
Cc: Sarah Best <sbest@calpoly.edu>; Dean E. Wendt <dwendt@calpoly.edu>; Amy Spencer Fleischer <afleisch@calpoly.edu>
Subject: Re: STAT memo for SoAC

Hi Tom,

I wanted to note that I wrote the memo before seeing the revised proposal, which I've just now seen. I appreciate Amy's responsiveness and the thoroughness of Zach, Ben, and John on the proposal revisions. While slowing things down was inconvenient, I do believe the proposal is stronger.

Andrew

Andrew Schaffner

Pronouns he/him/his

Chair and Professor, Statistics Department

Cal Poly, San Luis Obispo CA

phone: 805-756-1545

email: aschaffn@calpoly.edu

zoom: https://calpoly.zoom.us/my/aschaffn (ID: 805 756 1545)

schedule meeting: https://calendly.com/aschaffn

From: Thomas D. Gutierrez <tdgutier@calpoly.edu>

From: **Kevin Lertwachara** klertwac@calpoly.edu
Subject: RE: School of Applied Computing
Date: May 11, 2022 at 9:44 AM
To: John Y. Oliver jyoliver@calpoly.edu
Cc: Zachary N.J. Peterson znjp@calpoly.edu

Hi John & Zachary,

I'm writing to express my support of the SoAC initiative. Increasing access and learning opportunities for students is a wonderful idea. I am interested in participating in this initiative and collaborating with the SoAC faculty in the future.

Best,
Kevin

From: John Y. Oliver <jyoliver@calpoly.edu>
Sent: Monday, May 9, 2022 9:39 AM
To: Kevin Lertwachara <klertwac@calpoly.edu>
Cc: Zachary N.J. Peterson <znjp@calpoly.edu>
Subject: RE: School of Applied Computing

Hi Kevin,

Think you could write a 1-2 sentence letter of support for the creation of the SoAC? If you could please send a copy to Dr. Peterson (attached). Thanks.

From: John Y. Oliver
Sent: Wednesday, May 4, 2022 9:43 AM
To: Kevin Lertwachara <klertwac@calpoly.edu>
Subject: School of Applied Computing

Sorry, forgot to send this info to you.

Slides

Attached proposal draft.

– –

John Oliver (he/him), Professor
Computer Engineering
Cal Poly San Luis Obispo
jyoliver@calpoly.edu
https://calpoly.zoom.us/j/8057565434
html: www.ee.calpoly.edu/faculty/jyoliver
achiever|consistency|responsibility|analytical|strategic

To Whom It May Concern

We write in our capacities as Area Chair of the Economics Area and Program Director of the MS in Quantitative Economics at Cal Poly.

We have had the opportunity to discuss and review the proposal for the creation of the School of Applied Computing. We believe this to be a remarkable idea that should benefit the students of every College on campus and we strongly support the initiative. In particular, we in the Economics Area also look forward to our students increasing their breadth and depth of training in Applied Computing, as this is an essential skill for professional and academic economists to have and master. At the same time, we also look forward to contributing to the success of the School of Applied Computing with our own teaching and research efforts in this field of knowledge.

Sincerely,

Aric Shafran
Chair of the Economics Area, Orfalea College of Business

Eduardo Zambrano
Program Director of the MS in Quantitative Economics at Cal Poly

Letter_SOAC

Final Audit Report   2022-05-09

Created:	2022-05-09
By:	Aric Shafran (ashafran@calpoly.edu)
Status:	Signed
Transaction ID:	CBJCHBCAABAAe5rBe6w2xikAs12leW8tQr8YjNu6RVdS

"Letter_SOAC" History

📄 Document created by Aric Shafran (ashafran@calpoly.edu)
2022-05-09 - 6:24:46 PM GMT

📧 Document emailed to Eduardo Zambrano (ezambran@calpoly.edu) for signature
2022-05-09 - 6:25:31 PM GMT

📄 Email viewed by Eduardo Zambrano (ezambran@calpoly.edu)
2022-05-09 - 6:31:07 PM GMT

✍ Document e-signed by Eduardo Zambrano (ezambran@calpoly.edu)
Signature Date: 2022-05-09 - 6:31:55 PM GMT - Time Source: server

✅ Agreement completed.
2022-05-09 - 6:31:55 PM GMT

MEMORANDUM

To: Thomas Gutierrez
Chair, Academic Senate

From: Jeffrey D. Armstrong
President

Date: May 23 2022

Copies: Amy Fleischer
Damon Fleming
Bruno Giberti
Ben Hawkins
Cynthia Jackson-Elmoore
John Oliver
Zachary Peterson
Cem Sunata
Christine Theodoropoulos
Andy Thulin
Dean Wendt
Philip Williams

Subject: Response to AS-943-22 Resolution on the Creation of a School of Applied Computing

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By way of this memo, I acknowledge and accept the above-entitled Academic Senate resolution. In addition to the approval by the Academic Senate, I also acknowledge the endorsement of the provost and the academic deans.

The Office of the Provost will lead additional discussions, as needed with appropriate campus constituents, regarding the structure of the school as described in the proposal.

Please express my appreciation to the Academic Senate members and the School of Applied Computing Steering Committee for their attention to this important matter.