The Biomedical Engineering Society at UCLA
2025 Renewal Document

A. Faculty Advisor's Information
   a. Name: Daniel T. Kamei, Ph.D.
   b. Email Address: kamei@seas.ucla.edu
   c. Member ID: 7696

B. Ten Core Student Members Information

Name	**Chapter Position**	**Email**
Wesley Luk	Academic Chair	wesleyluk@ucla.edu
Ian Morales	Treasurer	iannoemorales@icloud.com
Cara Susilo	Publicity Chair	carasusilo@gmail.com
Amelia Rodolf	Cell Team Project Manager	ameliarodolf@ucla.edu
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Hannah Yared	Workshops Officer	hannahyared@g.ucla.edu

C. Student Chapter/Department Website Link: http://bmes.seas.ucla.edu/

D. One Free Student Membership Information

New Membership or Renewal?	Email	Name	Company /Institution /University	Graduation Year	Gender	Ethnicity
Renewal	wesleyluk @ucla.edu	Wesley Luk	UCLA	2026	Male	Asian

Biomedical Engineering Society at UCLA

2024-2025
Chapter Development Report

The Biomedical Engineering Society (BMES) chapter at UCLA has shown vast growth in the activities and resources we provide for all individuals interested in the field of bioengineering. Our organization is dedicated to supporting students in multiple areas, which range from professional and academic development, community outreach, mentorship, social opportunities, and hands-on technical projects. The 2024-25 academic year marks the beginning of multiple new initiatives that increase the breadth of our impact. One of our newest programs, Research Team, is a student-led project that prepares members for conducting research at the graduate level. This year, we added another research team to allow more students to be involved with advance wet lab design. Furthermore, we were able to greatly increase the amount of funding we received for both our design and research teams, which allowed our project teams to increase the complexity of their project and attend conferences. One of our major ontakings was to create inclusive excellence in the BMES at UCLA community. Through our professor equity, diversity, and inclusion panels and new BMES Best Buddies program, we were able to create an inclusive space and help members learn how to be inclusive as bioengineers. Additionally, we increased our connections with industry and academia through hosting info sessions and obtaining more sponsorships this year. Our tight knit community remained strong with our fun and unique mentorship events that helped members stay connected amongst each other throughout the year. We also remained connected with our Los Angeles community by hosting our quarterly Science Days. New or established, all of these initiatives demonstrate our chapter's excellence and our dedication to helping our members grow throughout the years.

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Daniel T. Kamei, Ph.D.
Chapter Advisor
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Dear Student Chapter Award Committee Members,

Thank you for providing BMES at UCLA a space to summarize our achievements from the past academic year. This year, I have witnessed our chapter's dedication to fostering a more inclusive space within bioengineering, bridging connections with industry, and spearheading projects that have much potential for positively contributing to our society. Our chapter has seen tremendous growth this year, with significant strides in EDI, technical project work, and professional development for our members.

Equity, diversity, and inclusion in engineering is a continually growing endeavor, and in order to ensure bioengineering is a welcoming and uplifting community, we have established an EDI chair and committee within our general board. This committee has launched an EDI panel series in which students can converse with a professor about how they can have an impact at the university level and EDI's importance as bioengineers. To help students feel more connected in our community, we also introduced the BMES Best Buddies program that has helped students create close friendships and become more involved in BMES.

In addition to continuing to build a tight knit community, we have also been able to facilitate connections with both industry and academia that will help members receive the insights and knowledge they need to pursue their desired career paths. We successfully hosted our annual biotechnology-focused career fair which helped students network with recruiters to secure internship and full-time positions. For students interested in graduate school, we hosted speakers from major institutions including UCSF and Mayo Clinic to inform students about the application process. These events inform students of the many opportunities available within both industry and academia.

BMES at UCLA prides ourselves on developing student-led projects that can positively contribute to society, and this year we raised over $13,000 to fund six incredible projects ranging from a soft robotic endoscope catheter to utilizing bacteria for the degradation of microplastics. Additionally, we have been able to see significant growth in our technical projects, with our research team doubling in size this year to accommodate more members. As a result, we have been able to provide over 100 students with the opportunity to gain hands-on skills and apply their bioengineering knowledge on projects that are created and developed to positively impact society. Our annual bioengineering focused hackathon, Biohack, further supported student growth by providing students with the resources to complete a bioengineering project within 48 hours and present it to alumni and faculty judges. These experiences enable students to apply what they learn to real-life applications, which I am confident will be helpful in their future careers.

Overall, BMES at UCLA is an integral part of the UCLA bioengineering experience by offering students not only lasting friendships but also essential resources to thrive during their undergraduate years and beyond. I am proud of our chapter's immense growth this past year as reflected in this report and am enthusiastic to see what new opportunities for continued development lie ahead. Thank you very much for your time and consideration.

Sincerely,
Daniel T. Kamei, Ph.D.
Chapter Advisor
kamei@seas.ucla.edu

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Administrative Report

To maintain and grow our events and resources for the over 200 members of the BMES at UCLA chapter, the infrastructure of our General Board is optimized for efficiency in communication and execution. Responsibilities are divided amongst 45 people within our General Board, which includes the 4 members of the Executive Board and the 9 members of the various BMES Committees. These BMES Committee members are led by their respective chairs and assist with event planning and execution. The Executive Board members, in addition to their own responsibilities, oversee the activities of their respective branches. The entire board meets weekly, and the Executive Board has a separate weekly meeting. These meetings promote effective communication and allow for all members to be aware of important events and initiatives. To further secure this awareness, we have a shared Google calendar so that chairs do not schedule events that conflict with one another.

We also prioritize the development and preservation of institutional knowledge. All of the BMES chairs work within the same shared Google drive, which dates back to 2009. As such, the General Board can look back into past folders for guidance. We also have documents called “Monkeybooks,” which summarize our events so that chairs have a written record of how to plan and execute events that happen annually. Our transition documents are in-depth guides for each new set of General Board members to use in fulfilling their responsibilities. These transition documents are updated annually and the outgoing and incoming chairs are required to have a meeting in which the document is reviewed and all questions can be answered.

Total Student Membership: 245
Number of National Members: 10

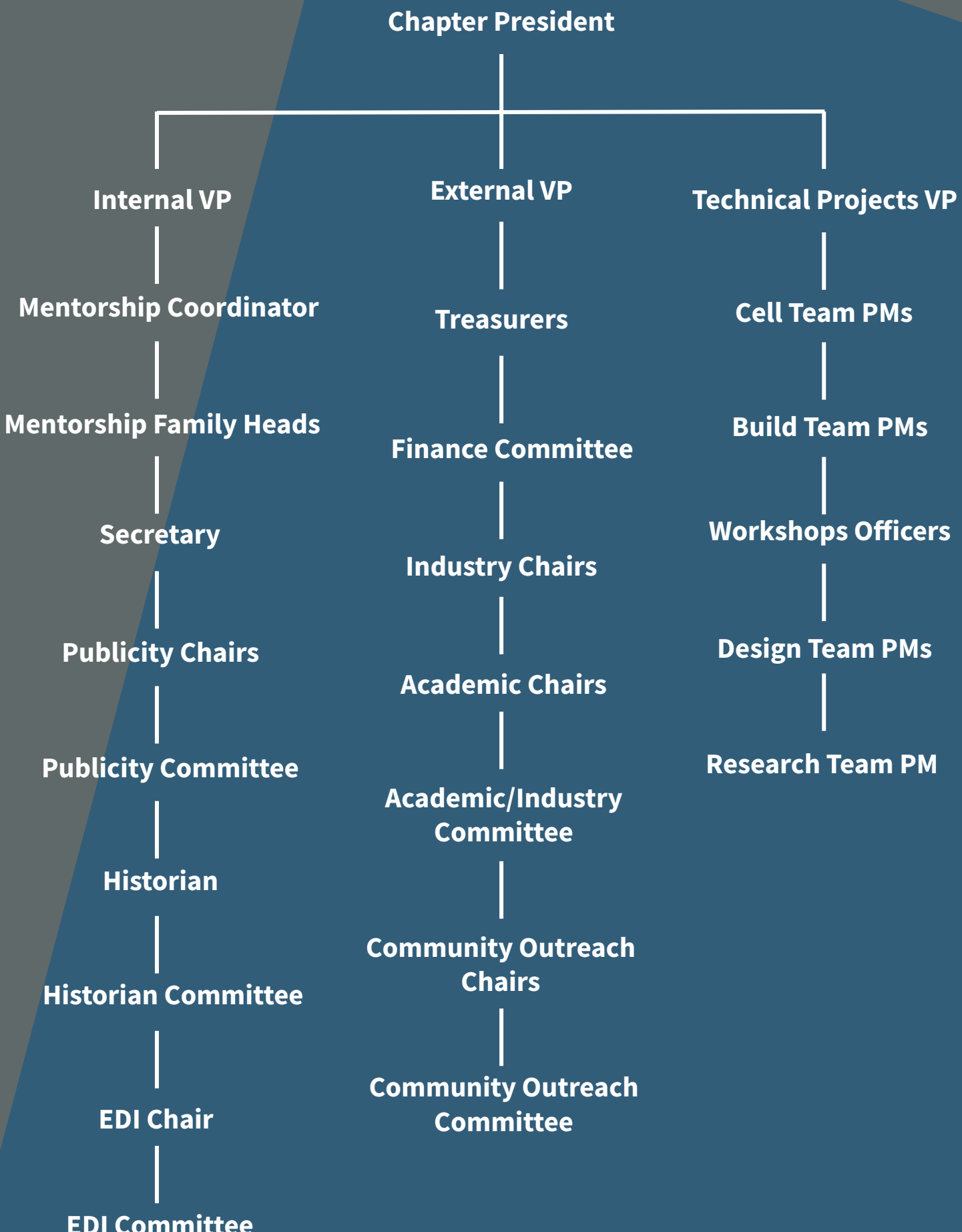
BMES Board Responsibilities

Position	Name	Responsibilities
President	Audrey Sogata	Oversees chapter operations, liaison with other UCLA organizations
External Vice President	Natalie Tsubamoto	Oversees finances and acts as industry liaison
Internal Vice President	Lillian Gong	Oversees social events and mentorship
Technical Projects Vice President	Viên Le	Oversees technical projects
Treasurers	Ian Morales and Michelle Haung	Oversees finances and apply for UCLA funding
Finance Committee	Eileen Zhang	Assists treasurers
Secretary	Andrew Tran	Oversees recordkeeping and communications
Community Outreach Chairs	Tanya Lee, Nathan Choup, and Evelyn Bennett	Oversees community outreach programs
Community Outreach Committee	Sarah Akiel and Lily Sarkissian	Assists Community Outreach Chairs
Industry Chairs	Teagan Carr, Eve Spruite, and Fiona Zhang	Oversees industry relations and events
Academic Chairs	Wesley Luk and Saskia Vaillancourt	Oversees academic events and alumni affairs
Academic/Industry Committee	Anastasia Gabrik and Maxence Larour-Debonneuil	Assists Industry and Academic Chairs
Mentorship Coordinator	Isaac Rodney	Oversees mentorship events
Mentorship Family Heads	Karina Bender, Trisha Tanaka, Alexandra Jensen, and Sophia Welsh	Oversees individual mentorship families
Publicity Chairs	Cara Susilo and Sanika Deosthali	Oversees publicity and media presence

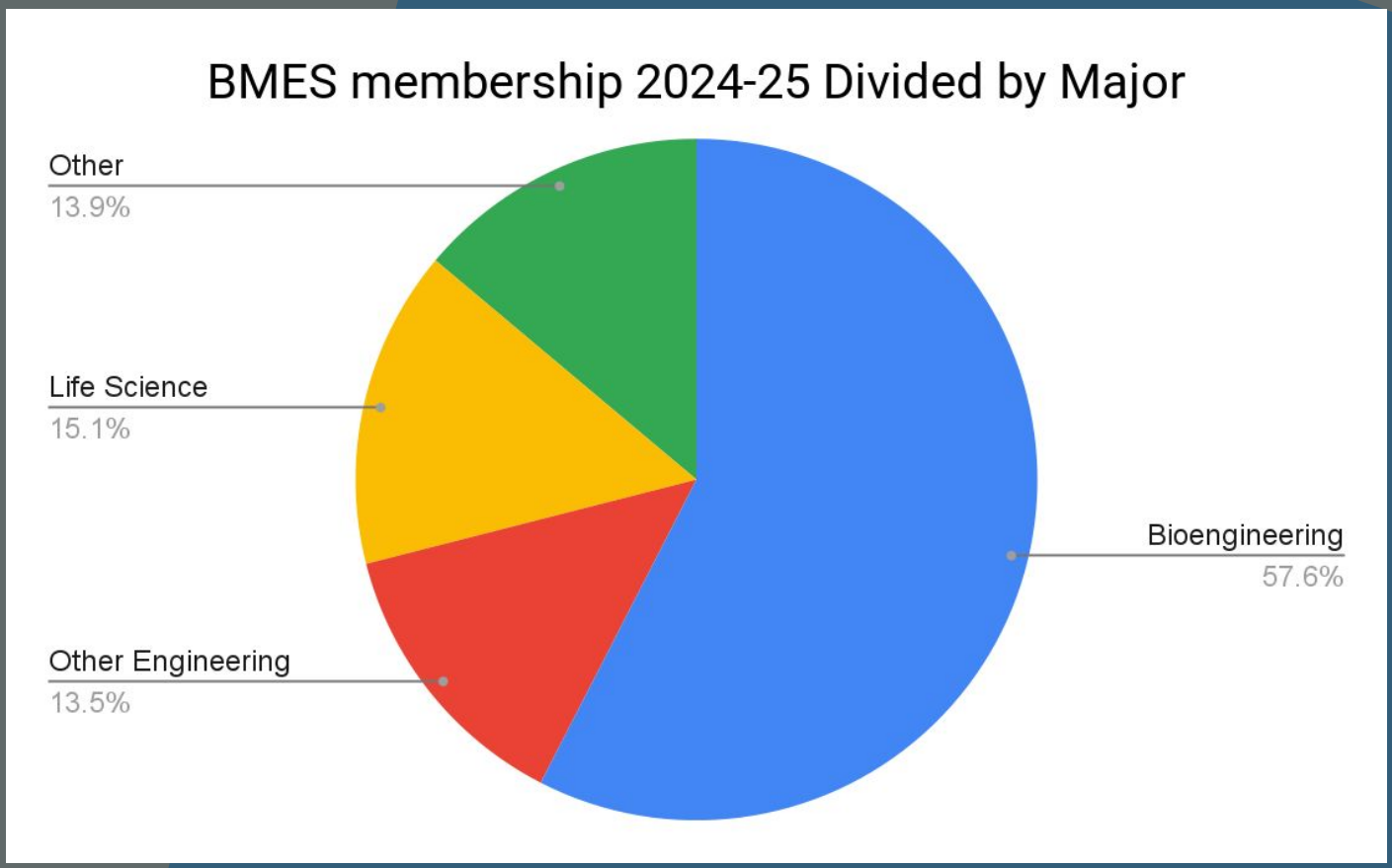
BMES Board Responsibilities

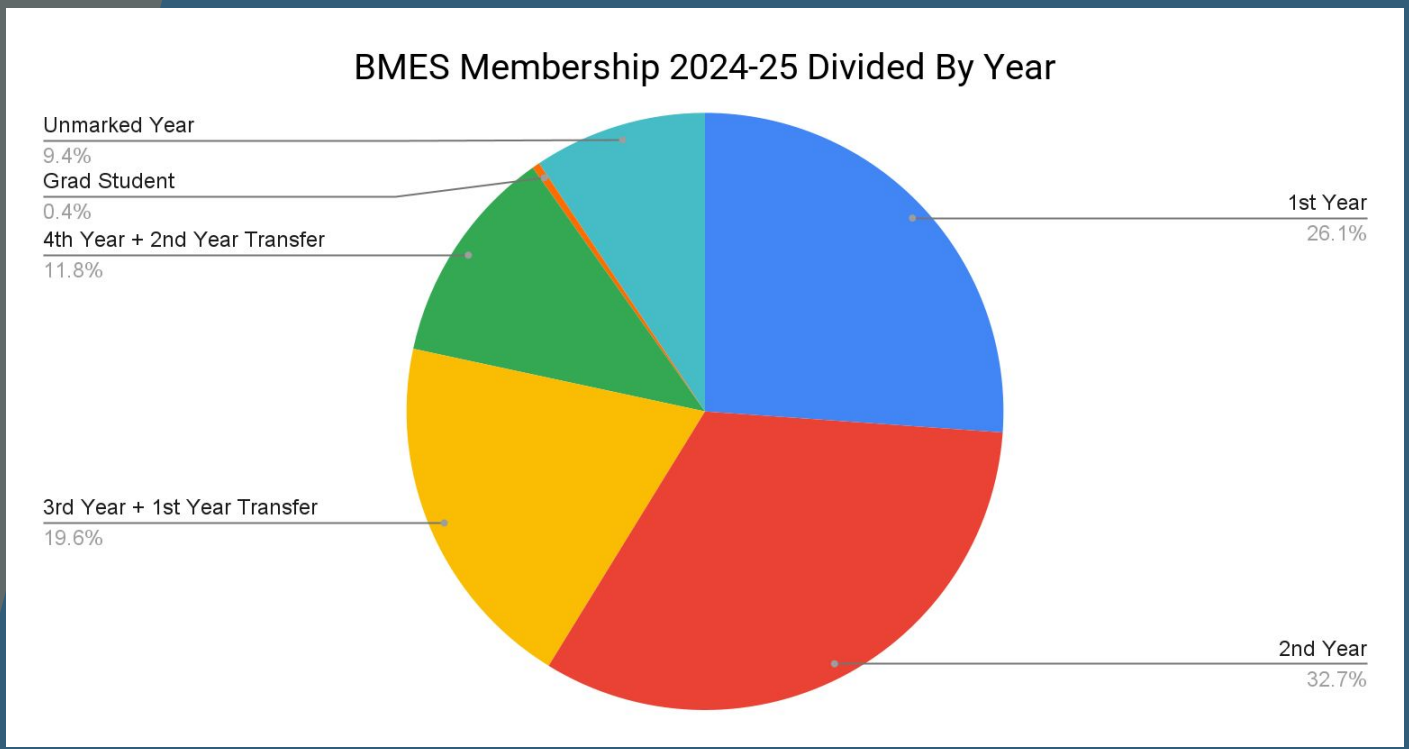
Position	Name	Responsibilities
Publicity Committee	Justine Lin	Assists Publicity Chairs
Equity, Diversity, Inclusion (EDI)Chair	Enoch Lee	Oversees EDI initiatives and events
Equity, Diversity, Inclusion Committee	Rubaba Kamal and Catherine Chen	Assist EDI Chair
Historian	Douglas Wu	Oversees media documentation of events
Historian Committee	Emily Phan	Assists Historian
Workshops Officers	Hannah Yared and Ellen Zulkarnain	Oversees technical workshops
Build Team Project Managers	Ena Pejovski and Helen Ran	Oversees Build Team
Cell Team Project Managers	Amelia Rodolf, Iris Sloan, Khanh Tran, and Brianna Gaughan	Oversees Cell Team
Design Team Project Managers	Rachel Yu, Anthony Wu, Aaron Li, Asher Kim, Amber Kashay, and Allison Cheng	Oversees Design Teams
Research Team Project Manager	Raymond Nova	Oversees Research Teams

BMES BOARD
Management Overview



Membership Overview





BMES at UCLA Meetings

General Meetings
Executive Board and General Board Meetings

01 General Meetings and Agendas

	Date	Attendance	Agenda
Fall GM	10.02.2024	116	Introduce 2024-25 General Board Members, announce committee and technical projects applications, announce Fall Quarter events
Winter GM	01.15.2025	60	Introduce 2024-25 Committee Members, announce Biohack committee applications, announce Winter Quarter events (Note: this GM took place online due to the LA fires)
Spring GM	04.08.2025	25	Introduce 2024-25 Executive Board Members, announce Spring Quarter events, announce General Board applications

02 Executive Board Meetings and Agendas

The BMES Executive Board meets on a weekly basis to cover any topics that we need to discuss with General Board members during Board Meetings as well as assign any action items for the President and Vice Presidents. During these meetings, each Executive Board member gives updates on any upcoming branch activities and funding needs.

03 General Board Meetings and Agendas

Our General Board Meetings, led by the chapter's Executive Board, occur on a weekly basis. These hour-long meetings provide chairs the opportunity to give updates on event planning progress and ideas. Chairs are also able to discuss new event ideas with others, make announcements, and receive feedback on previous events. An example meeting agenda can be found below:

1. Recap the previous week's events and get feedback from other board members on them.
2. Announce upcoming events for the next week.
3. Chair updates: officers discuss relevant updates and ask for help from the rest of the General Board and Executive Board if needed.
4. Individual work time: chairs have the last half of the board meeting to work amongst themselves and work on event logistics.

Treasury Report

BMES at UCLA maintains an organized budget throughout the year, ensuring that we are able to provide our members with high quality programming. Our External Vice President and Treasurers work closely to acquire funding to supplement the funds from chapter membership dues. In future years, we will strive for optimization of our budget and identification of new funding sources for continuous improvement of our resources.

Beyond membership dues, our chapter hosts fundraising events over the course of the year, and a major goal for this year was to expand our fundraising efforts. These include partnering with local restaurants and hosting cafe pop-ups in which people can pay us for high quality cafe style beverages. We also created a crowdfunding campaign with UCLA SPARK to obtain resources specifically for our technical projects. Our sponsorship program continues to thrive, with companies such as Corning and BiVacor providing support for our activities. Additionally, our organization frequently applies to UCLA funding sources for execution of our larger events.

Chapter Expenses Breakdown

Overview of withdrawals and deposits by event category

Event Type:	Withdrawals:	Deposits:
Administrative	$404.43	$0
Fundraisers	$743.05	$4,605.07
Social	$5,980.19	$5,994.68
Community Outreach	$9,075.52	$9,075.52
Mentorship	$347.51	$0
EDI	$164.10	$0
Industry and Professional Development	$5,103.35	$6,300
Technical Projects	$13,030.62	$16,930.08
Total:	$34,848.77	$42,905.35
Net Change in Balance:		**+$8,056.11**

Fundraisers

Membership Dues & T-Shirt Sales

Date: Ongoing **Profit Raised:** $2905

Over the course of the school year, BMES at UCLA asks its members to pay a one-time registration fee to help cover the costs of the events and program we put on over the course of the year. We also sell T-shirts for members to show their pride for BMES at UCLA!

Panda Express Fundraiser

Date: 10.10.2024 **Profit Raised:** $35.00

BMES collaborated with ASUCLA Panda Express for a fundraiser. Students went to purchase lunch to support BMES.

BMES x Pre-PA Cafe Pop-Up

Date: 11.17.2024 **Profit Raised:** $259.67

BMES collaborated with the UCLA Pre-PA club to hold a cafe pop-up in which board volunteers hand whisked matcha and coffee made to order. Customers were able to choose from a wide variety of beverages including matcha lattes, strawberry matcha lattes, dalgona coffee, and Vietnamese coffee. There were also delicious baked goods on sale. Members were able to bring their friends and meet new people at this fun and scrumptious fundraiser!

BMES x Pre-PA x IUSSC Cafe Pop-Up

Date: 01.26.2025 **Profit Raised:** $196.67

Due to the popularity and high demand after our first cafe pop-up, we once again collaborated with the UCLA Pre-PA club along with the International Urban Sustainability Student Corp to bring together different groups to collectively fundraise for our respective organizations.

Fundraisers

Chipotle Fundraiser

Date: 02.10.2025 **Profit Raised:** $35.63

BMES collaborated with Chipotle to hold a fundraiser at a student-favorite meal spot in Westwood. Students participated by enjoying a meal at the restaurant or ordering takeout. Some members walked to the restaurant together as part of a small social activity, while others invited their friends from outside of BMES.

BMES Boba and Banh Mi Fundraiser

Date: 02.24.2025 **Profit Raised:** $430.28

BMES held a fundraiser selling boba and banh mi in the UCLA Court of Sciences. This is one of BMES's most highly anticipated fundraisers as students look forward to purchasing tasty sandwiches and boba at an affordable price.

BMES Boba and Banh Mi Fundraiser Part 2

Date: 05.01.2025 **Profit Raised:** TBD

Due to the popularity of our beloved boba and banh mi fundraiser amongst students, we are bringing it back for the spring quarter!

Instagram Bingo Card Fundraiser

Date: TBD **Profit Raised:** TBD

Every year, our general board members participate in posting bingo dares on their instagram stories in which followers and friends can pay board members in exchange for completing a dare. Some notable dares include posting a baby photo and jumping fully clothed into a swimming pool. This fundraiser is a lot of fun and has brought the BMES at UCLA community together!

Total Profit: $3,862.25

BMES x UCLA SPARK Crowdfunding Campaign

The BMES campaign: Support Biomedical Innovation, in affiliation with UCLA Spark, raised money for our technical projects. Our technical projects managers, with the help of their team members, worked to promote the crowdfunding effort throughout the month. To have as much freedom as possible in our engineering efforts, we need to purchase materials and tools for building prototypes. Our technical projects provide invaluable hands on experience, and the Spark campaign brought in more resources for more creative innovations. The campaign lasted from 10.29.2024 - 11.28.2024. We raised a total of $4,870 specifically for our Design and Research Teams.

Overview of External Funding:

Name	Amount
[UCLA] Campus Support for Student Programming	$5,504
Industry Sponsorships	$1,500
[UCLA] Contingency Finance Application	$2,066.66
[UCLA] Engineering Alumni Association	$9150
[UCLA] Recreation Event Fund	$1,416.85
[UCLA] Academic Success Referendum Fund	$1,265
[UCLA] Campus Programs Committee Youth Programming Fund	$5,532.13
[UCLA] Community Activities Committee Regular Fund	$5,883.51
Total:	$32,318.15

Chapter Activities

BMES at UCLA offers a variety of events for all of its members to enrich their undergraduate experiences and prepare them for future careers in bioengineering. Our events are divided into six main categories: social, community outreach, mentorship, professional development, academic advancement, and technical skills development. Our social events have always attracted a large proportion of the UCLA Bioengineering community. They can largely be divided into department-wide (including faculty and graduate students) and undergraduate-specific. All of our social events are successful in building relationships between students, which are sustained throughout their undergraduate careers. We have also been very fortunate to have met leadership from other chapters at the 2024 BMES Annual Meeting. From those contacts, we have co-hosted events to foster strong interchapter relationships and are even planning the first ever California-wide BMES Bash event. Our community outreach events focus on inspiring students in underserved communities and providing members with opportunities to create a positive impact in the greater LA area. This year we began new EDI initiatives such as our BMES Best Buddies program to help our members form strong friendships and feel included in our tight knit bioengineering community. Our academic events expose students to paths in further education and connect them to current opportunities in research. We also prioritize creating opportunities for professional development and relationships with industry leaders through our industry panels and Annual Biohack. Our chapter prides itself on bringing successful and accomplished individuals into the biomedical engineering field. To further prepare students for their future careers, our technical projects provide opportunities to learn fundamental hands-on skills.

All of our events support members in their exploration of biomedical engineering during their time as undergraduate students. Our wide breadth of programming creates well rounded individuals, and we are continuously expanding our resources to better serve our members.

Social or Other Activities

Social events are an essential part of allowing BMES to connect our members and recruit new students into our community. Because UCLA Bioengineering is so large, it is essential to implement support systems that can help first year students and transfer students form long lasting relationships. We often see people build long-lasting friendships at our socials and continuously return to our events year round. Because we extend invitations to faculty, graduate students, and alumni, our members are also able to interact with individuals outside of their fellow undergraduates. Our social events always have a fun theme and are accompanied by exciting games and activities that foster a fun environment. BMES at UCLA wholeheartedly asserts that having relationships outside of the classroom is necessary for the building of a successful individual.

This year is our first year with an EDI Chair, and we believe that our new EDI initiatives and events have created a more inclusive environment in our bioengineering community.

Department-Wide Celebrations

Once a quarter, BMES at UCLA hosts a departmental wide social gathering to bring together the entire UCLA bioengineering community, allowing our members the opportunity to interact with graduate students, faculty and staff in the department.

UCLA Student Organization Fairs

Date: 9.24.2024 and 9.25.2024 **Attendance:** 90 **Cost:** $0

Officers of BMES at UCLA hosted an in-person booth at UCLA's annual student organization fairs (one for general UCLA students and one targeting UCLA Engineering students). Incoming students were given the opportunity to learn about BMES and our programs. We recorded their contact information and invited them to our quarterly general meeting.

Holiday Party

Date: 11.28.2024 **Attendance:** 90 (1 graduate, 4 faculty) **Cost:** $2,294.03

Holiday Party is a large social event for undergraduate students, graduate students, and faculty for a celebration of the holiday season. This Winter Wonderland themed event is an opportunity for the entire BMES community to get together for a fun night filled with holiday activities, music, and Thanksgiving themed food.

BioE Ball

Date: 02.21.2025 **Attendance:** 70 **Cost:** $1501.54

This is an opportunity to mingle with one another and learn more about one another through various fun activities. Our theme this year was Red Carpet, and we played red carpet and Hollywood trivia and danced the night away.

End-of-the-Year Banquet: TBD

Date: TBD **Attendance:** TBD **Cost:** TBD

The end of the year banquet provides BMES members and faculty the opportunity to look back on all of the chapter's achievements from the past year, enjoy a meal together, and bid farewell to the graduating seniors.

Undergraduate Socials

In addition to departmental wide events, a number of events are held over the course of the year to foster relationships within the undergraduate community.

Fall Board Retreat

Date: 10.05.2024-10.06.2024 **Attendance:** 25 **Cost:** $801.87

Each Fall Quarter, the incoming BMES General Board participates in a weekend of team-building activities and bonding. This year we travelled to San Diego where we had lots of fun playing games and getting to know each other. The goal of this retreat is to create stronger relationships within the board and lead to successful events during the school year.

Fall BBQ

Date: 10.18.2024 **Attendance:** 85 **Cost:** $1,305.25

Fall BBQ is the first large club-wide BMES event of the year. We serve snacks, hamburgers, hot dogs, and drinks. Attendees play games, meet their mentorship family through a grand reveal and their mentor-mentee pairs. Fall BBQ is one of the best bonding events BMES offers. It helps everyone connect at the beginning of the quarter and encourages students to stay involved throughout the year.

KBBQ Night

Date: 02.08.2025 **Attendance:** 16 **Cost:** $37.50

BMES members went to enjoy dinner together at Bud Namu, a Korean BBQ restaurant in the LA Ktown area. KBBQ Night is an annual mentorship event, and was great for fostering a strong community within BMES through delicious food and a fun outing. Members also went for dessert at a local favorite called Oakobing.

Spring Retreat

Date: 04.26.2025-04.27.2025 **Attendance:** TBD **Cost:** TBD

BMES board members will travel to Bakersfield, CA and bond for our final retreat of the year! This retreat will be combined with our California BMES Bash event that will be outlined later in this report.

Equity, Diversity, and Inclusion (EDI) Events

To create a community in which all students are welcome, our EDI committee has hosted events centered around education on equity, diversity, and inclusion. Our goal this year was to increase our impact in inclusive excellence. We achieved this through our quarterly EDI-focused panels, multicultural night, and a successful petition.

Fall EDI Panel

Date: 11.19.2024 **Attendance:** 9 (1 faculty) **Cost:** $140

This event helped attendees gain more insight into the development of EDI over time, especially within the bioengineering field, and taught attendees how to take action to create impact at the university level. Attendees were able to have a meaningful conversation amongst each other and with Dr. Jaimie Stewart.

S.H.A.P.E. Symposium

Date: 11.24.2024 **Attendance:** 20 (1 faculty) **Cost:** $442.89

Through a collaboration with the Society of Women Engineers, this event showed attendees the status quo around sustainability, accessibility, and equity in the design of HealthTech, personal care, and other engineering breakthroughs. Participants have expressed that the presentations were insightful and inspiring.

BMES Petition for Bioengineering 165EW

Date: 01.15.2025 - 04.05.2025 **Signatures:** 90

To address ethical concerns in the biomedical space, bioengineering students must be equipped with a strong foundation in bioethics, ideally through dedicated coursework. This is why our EDI committee began a petition to bring back the Bioengineering 165EW course to diversify the bioengineering field, make it safe and inclusive for all, and explore the immense potential of biotechnology. We are ecstatic to announce the success of our petition, with the return of the bioengineering ethics course, which is set to return in Winter 2026!

Multicultural Night

Date: 02.25.2025 **Attendance:** 26 **Cost:** $65.03

The BMES Multicultural Snack Night is organized by BMES EDI, where we are providing snacks of different cultures, along with games and discussion prompts. We will be discussing the importance of diversity, why EDI can be misrepresented in mainstream media, and what we can do to make sure everyone, regardless of ethnicity, gender, sexual orientation, and disability feels included.

Winter EDI Panel

Date: 03.03.2025 **Attendance:** 15 (2 faculty) **Cost:** $98.36

BMES's Winter EDI Panel was meant to start and continue the discussion about the importance of EDI in university life, bioengineering, and research as a whole. We had guest panelists Dr. Jacob Schmidt and Dr. Tyler Clites to facilitate our conversation about the state of EDI - especially with current US events. This panel's main purpose was to make sure all attendees understand that EDI is a tool to make sure everyone feels included, represented, and has access to the same opportunities as everyone else.

Spring EDI Panel

Date: TBD **Attendance:** TBD **Cost:** TBD

In the final installment of our quarterly EDI Panel series, we will be bringing in another bioengineering professor to have a meaningful conversation with students about EDI in bioengineering and the UCLA community.

EDI BBQ

Date: TBD **Attendance:** TBD **Cost:** $65.03

EDI BBQ will be one of our last EDI events of the year. We hope that it is a event for students to have open discussions with one another about EDI subjects while having fun!

Inter - Chapter Activities

Our chapter has always emphasized the importance of collaboration, amongst our General Board and beyond into other organizations. As such, we utilize the Discord server with all of the California BMES chapters to make meeting plans and establish event logistics. This year we were able to put on multiple in person events for our cross chapter socials with our fellow SoCal BMES chapters, UCI and USC. In the upcoming month, the California BMES chapters will be hosting our first ever major meet-up, in which we will share research and meet new bioengineering students! This will allow for transfer of valuable knowledge to improve the success of all of our members.

UCLA x UCI Beach Day

Date: 10.12.2024 **Attendance:** 45 **Cost:** $40.00
Collaborating Chapter(s): UCI

This was a fun way for BMES at UCLA members to hang out in Long Beach with members from the UCI chapter! Students brought along volleyballs, spike balls, board games, and food to enjoy the afternoon together. This event allowed students to interact with and meet other BMES students from a different chapter. It allowed them to make new friends and socialize with students of similar interests from a different school.

UCLA x USC Meet-Up

Date: 04.13.2025 **Attendance:** 21 **Cost:** $60
Collaborating Chapter(s): USC

After meeting our bioengineering pals from across town at the 2024 National Conference we wanted to have our general members connect as well! We are excited to collaborate with USC to bring our members a fun day together as Bruins and Trojans at one of LA's most popular tourist destinations, Griffith Observatory. Our members mingled and took fun photos together and bonded over our shared experiences.

California BMES Bash

Date: 04.26.2025 **Attendance:** TBD **Cost:** TBD
Collaborating Chapter(s): SJSU, UCD, SCU, USC, UCB, UCSD, CSULB, Cal Poly SLO, UCI

In the works since October 2024, the California BMES chapters are planning a major meet-up on the Cal Poly SLO campus in what we hope can become an annual tradition amongst the California BMES chapters. We plan on having networking bingo and opportunities for students to learn about bioengineering programs across California.

Outreach Activities

Members of BMES at UCLA have always held a strong passion for inspiring the community and bringing much needed resources to underserved populations. Our impact is consistently the strongest in elementary, middle, and high schools. We prioritize mentorship alongside learning and service.

Our flagship program, Reaching and Inspiring Students in Engineering (RISE), is our biggest commitment to creating opportunities for students to engage with engineering. Our lessons build fundamental skills and encourage critical thinking. Above all, our goal as volunteers is to inspire the upcoming generation to pursue higher education.

In addition to these site visits, we bring students on campus for a full day of STEM based activities. We call these Science Days, and we pride ourselves on providing the unique experience of showing students UCLA's incredible learning environment. Our chapter hosts one every quarter to maximize the number of students we impact.

Reaching and Inspiring Students in Engineering (RISE)

Our RISE program focuses on establishing a fruitful connection with the students at James Madison Middle School. Our goal is not only to foster interest in pursuing a career in the engineering field, but also to promote the idea of continuing education. Madison is a Title I school in the Los Angeles Unified School District and over 80% of students come from low-income backgrounds. Our program focuses on providing a supportive, educational, and engaging learning experience to these students.

Throughout the program, we provide step-by-step mentorship as students learn basic engineering concepts, culminating in final projects demonstrating their hard work and new knowledge. In doing so, we provide students from underserved communities the opportunity to explore the vast possibilities in science without financial limitations and introduce accessibility of learning STEM from a hands-on approach. Additionally, we instill a long-lasting passion for learning and exploration often associated with higher education and interests beyond the scope of the program.

We accomplish these goals through on-site interactions, where volunteers hold workshops to teach various concepts, where each workshop builds off the previous. With this structure, we are able to foster continued mentor-mentee relationships throughout the school year and beyond. Our goal is for participants to feel comfortable asking for help and advice not only about the concepts they were learning but also about their interests outside of the curriculum.

Over the course of the year, we have received a great amount of positive feedback from teachers, principals, as well as our student volunteers. It has been an extremely rewarding experience to see the development of student interest in the engineering field over the course of these visits. We continue to strive to increase the quality and breadth of our programs and are excited to see how future years may continue to expand the RISE program.

Visit Breakdown

Prior to each site visit, BMES Community Outreach chairs hold in-person workshops to go over the upcoming visit's plan with volunteers. Volunteers have the opportunity to look over slides and ask questions prior to implementing the curriculum. Volunteers are also given tips for how to most effectively teach the students. Each of these volunteer workshops are held a the week prior to the site visit.

The day of the visit, volunteers meet at the UCLA Luskin Turnaround at 11 am to carpool to James Madison Middle School. They set up supplies for the lesson during the students' lunch and teach from 1 pm - 2 pm. We also like to give out snacks after our lesson to encourage engagement and participation. Our volunteers return to campus around 3 pm.

RISE Lesson Plans

Over the past six years, students at James Madison Middle School took part in our structured learning environment that introduced them to STEM concepts such as circuitry, iterative design, and computer assisted design. They also learned about the opportunities available to them in higher education. Our workshops focused on teaching particular science and engineering topics using Arduino UNO microcontrollers, circuit breadboards and online CAD programs. Our Community Outreach Chairs have also created space in the curriculum for the students to work on independent design projects. During each visit, our 8 UCLA volunteers work with 32 5th grade students. All of the visits for the entirety of the year cost $6,437.22 for transportation, supplies, and food.

Lesson Title	Date	Description
Intro to Arduino	11.01.2024	Introduced basic concepts in circuitry including current, resistance, and Ohm's Law in addition to how it applies to Arduino components. Afterwards, the students were able to participate in an Arduino practice activity.
Circuits on Arduino	11.22.2024	We first visualized an Arduino circuit and code which models a blinking LED using TinkerCAD. We then emulated this circuit and code using physical Arduino kits and the Arduino IDE.
Simple Circuits + Arduino	12.06.2024	We introduced parts of a circuit and the basics of Arduino IDE. Students were also able to try coding using TinkerCAD through an interactive actvity.

RISE Lesson Plans

CAD with Onshape (Part 1: Introduction to Basic Skills)	02.13.2025	Applied CADing skills to OnShape program, relating 2D sketches to 3D models. Practicing skills such as extrusion, revolution, and sweeping, we reoriented our lesson plan to prioritize student interaction and practice rather than a more lecture format.
CAD with Onshape (Part 2: More Basic Skills)	02.25.2025	Continued introducing new skills including filleting and chamfering. Followed up with an activity to model their own name tag using the skills they've acquired from OnShape.
CAD with Onshape (Part 3: Dimensioning)	03.04.2025	Presented the importance of dimensioning in creating a design; applied this concept through a step-by-step walk-through of creating a mug which combines all previous skills taught and learned. We also introduced how to create multiple parts which interact through assemblies.
Intro to Final Project	04.25.2025	Students will apply the CAD skills developed throughout the winter quarter to design their final projects: custom 3D-printed lamps, with guidance provided by BMES volunteers throughout the design process.
Final Projects Continued	05.16.2025	Students will continue refining their lamp designs, receiving assistance and design ideas from volunteers. The completed designs will be 3D printed by volunteers utilizing UCLA's 3D printing resources.
Lighting the Lamp!	05.30.2025	Students assemble LED circuits to illuminate their 3D-printed lamps, exploring various circuit configurations and experimenting with different LED colors to enhance their designs.

Science Days

As a part of BMES @ UCLA's outreach, we engage with low-income and historically underrepresented students to inspire them to pursue higher education. Science Days are one way in which we create this impact. The activities allow for students to experience the application of their coursework, and our volunteers are eager to share their stories as UCLA undergraduates. Attendees are consistently amazed by our campus and the positive learning environment it creates. This year, we are going to hold two Science Days to impact 2 different Title I schools in the LA area.

Fall Science Day

Date: 11.21.2024
Attendance: 32 UCLA student volunteers, 8 chaperones, 100 elementary school students
Cost: $2,638.30

BMES Science Days involve bringing local Title I schools to UCLA for a day filled with STEM-related activities. This quarter, we brought 100 5th graders from Esperanza Elementary school, and our volunteers led them through a tour around the UCLA campus, a foldscope activity in the Botanical Gardens, and a strawberry DNA extraction activity.

Spring Science Day

Date: 05.22.2025 **Attendance:** TBD **Cost:** TBD

This quarter's science day will bring students from James Madison Middle School to the UCLA campus for a day filled with fun and learning!

Mentoring Activities

The BMES at UCLA Mentorship Program brings fun and a strong sense of community to our chapter. Our General Board has 4 Family Heads (labeled as Guanine, Cytosine, Thymine, and Adenine) and 1 Mentorship Coordinator that hosts larger social events and oversees the program. We encourage all of our members to join a family, and our Family Heads host a variety of events to make a more intimate environment within our large club. At general meetings, the Family Heads advertise the types of events they will put on so that each family is composed of like-minded individuals. After our series of “rush” events intended to help mentees meet potential mentors organically, mentees can fill out a form and be matched with a mentor within their family.

Our mentoring activities also extend beyond the members of our chapter. We are excited to bring more mentorship events to high schoolers, to help them with their potential future as bioengineers. Our presence in the biomedical engineering space has also garnered the attention of individuals that are excited to mentor our members. Our IAB mentorship program with industry professionals is in its third year, and our list of mentors has expanded and diversified.

Mentorship Families

All BMES members are strongly encouraged to join our BMES mentorship families. While events are hosted by individual mentorship heads, most events are open to all BMES members, allowing students to foster relationships with other members both inside and outside of their families. In this section of the CDR, we detail the events put on by our Adenine, Cytosine, Guanine, and Thymine Family Heads.

Adenine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Adenine Family Halloween Movie Night	Adenine family watched a movie and enjoyed some snack and hot chocolate. The family members got to meet their fellow BMES members.	10.24.2024	8	$20.80
Adenine Learn How to Flip Night	Students were taught how to do a front flip! Participants got to destress from midterms and take a break from academics for a little bit.	11.21.2024	7	$0
Adenine Virtual Escape Room	In the first Adenine event of the quarter, A few people from adenine got together virtually to complete an online escape room. Due to the LA fires, club activities shifted to a remote setting.	01.18.2025	4	$0
Adenine Learn How to Flip Night Pt II	Due to its popularity Flip Night deserved a Part 2! People involved learned how to do a front flip and some even learned how to do a backflip.	02.18.2025	5	$0

Adenine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Thymine x Adenine Karaoke Night	[Collaboration with Thymine] Members sang karaoke and ate some snacks for the first ever Adenine/ Thymine event of the quarter. At this event members got to create lasting memories and share laughs.	01.31.2025	12	$0
Adenine Study Sundaes	In this event students stopped by for Ice cream sundaes in between classes and final review sessions. This gave students the chance to destress and take a break while studying for finals.	04.13.2025	25	$61.19
Adenine Learn How to Flip Night Pt III	The third and final Learn How To Flip Night taught members how to do a front flip. There were many laughs and cool memories made.	04.10.2025	8	$0
Guanine x Adenine Paper Making Night	[Collaboration with Guanine] Members will learn how to make paper from scratch!	05.03.2025	TBD	TBD
Adenine Study Snack Night	In the midst of midterms members can study together while enjoying some tasty snacks	TBD	TBD	TBD

Cytosine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Cytosine x Guanine Friendship Bracelet Making Night	[Collaboration with Guanine] In the first Cytosine family event of the quarter, students made friendship bracelets, had some snacks, and met new people while making friendship bracelets.	10.28.2024	8	$27.26
Cytosine Cupcake Decorating	Cytosine family hosted a cupcake decorating event as a sweet treat study break during week 10. Mini cupcakes as well as sprinkles and colorful icing were provided for attendees to get creative with.	12.02.2024	10	$33.33
Cytosine x Guanine Air Dry Clay Workshop	[Collaboration with Guanine] Kicking off winter quarter with an Air-dry clay workshop! Members had the opportunity to express their creative side and create with air dry clay or learn how to make a pinch pot. Members made pots, birds, and hearts while listing to good music and making friends.	01.23.2025	8	$0
Thymine x Cytosine Lanyard Making Night	[Collaboration with Thymine] Students gained a new hobby and learned about fellow students childhoods and personal connections to crafts and lanyard keychains, bringing friends closer and fostering community building.	02.20.2025	6	$20

Cytosine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Cytosine Boba Run	Boba run for Cytosine family to go together to Sharetea and bond over boba.	03.07.2025	5	$0
Cytosine Air Dry Clay Night	After the success of the last air dry clay night, Cytosine family will be having another air dry clay night for members to have fun and be creative!	TBD	TBD	TBD

Guanine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Cytosine x Guanine Friendship Bracelet Making Night	[Collaboration with Cytosine] In the first Cytosine family event of the quarter, students made friendship bracelets, had some snacks, and met new people while making friendship bracelets.	10.28.2024	8	$27.26
Guanine Study Sesh + Apple Tasting	Students were provided a space to study and try different varieties of apples. This was a fun way to to study with friends and have a snack!	11.14.2025	5	$16.61
Cytosine x Guanine Air Dry Clay Workshop	[Collaboration with Cytosine] Kicking off winter quarter with an Air-dry clay workshop! Members had the opportunity to express their creative side and create with air dry clay or learn how to make a pinch pot. Members made pots, birds, and hearts while listing to good music and making friends.	01.23.2025	8	$0
Guanine Cheez-it Night	Members made polymer clay Cheez-Its in Guanine's second event of the quarter! While making and eating Cheez-its, members got the chance to learn how to work with polymer clay and also bond.	01.29.2025	7	$37.24

Guanine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Guanine Pitch Perfect Night	Students gathered together to watch best movie of all time: Pitch Perfect. Students laughed, giggled even. Snacks were provided! jk jk here's a better one: Students took a study break and watched a fun movie with snacks and laughs!	02.27.2025	11	$25.55
Guanine Spring Picnic	Members will gather for a fun picnic outdoors with delicious snacks and drinks. This will be a great even for members to relax together!	04.17.2025	TBD	TBD
Guanine x Adenine Paper Making Night	[Collaboration with Adenine] Members will learn how to make paper from scratch!	05.03.2025	TBD	TBD

Thymine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Thymine T-Shirt Workshop	In the first Thymine event of the quarter, students were provided the resources and training to make their own custom tshirts using a vinyl cutter and heat press	11.07.2024	15	$59.14
Thymine Cozy Night	Members gathered to eat snacks and watch a fun movie just before Thanksgiving break!	11.26.2024	10	$37.65
Thymine x Adenine Karaoke Night	[Collaboration with Adenine] Members sang karaoke and ate some snacks for the first ever Adenine/ Thymine event of the quarter. At this event members got to create lasting memories and share laughs.	01.31.2025	12	$0
Thymine x Cytosine Lanyard Making Night	[Collaboration with Cytosine] Students gained a new hobby and learned about fellow students childhoods and personal connections to crafts and lanyard keychains, bringing friends closer and fostering community building.	02.20.2025	6	$20
BMES x Makerspace Cardboard Weapon Competition	Members will band together to create cardboard forts!	04.20.2025	TBD	TBD
Mutiny on the Bounty	This will be a pirate themed fun escape room and murder mystery event!	TBD	TBD	TBD
Thymine's Final Frog Night	One of BMES Mentorship's most beloved events is Frog Night, in which students gather to create an adorable personalized stuffed frog.	TBD	TBD	TBD

Mentorship Family Memories

Mentor-Mentee Rush Events

To create stronger bonds and more compatible mentor-mentee relationships, our Mentorship Coordinator and Family Heads put on a series of events modeled after the popular Greek Life “rush” system. Over the course of a week, potential mentees met a wide variety of mentors that they could request at the end of the rush events. This section is dedicated to the events in this series.

Mentorship Scavenger Hunt

Date: 10.11.2024 **Attendance:** 10 **Cost:** $0

Students explored UCLA's illustrious campus via a scavenger hunt featuring riddles, puzzles, and invisible ink. The event provided a fun way to get familiar with the campus as well as destress, let off steam, and break out one's competitive nature by sprinting from building to building.

Mentorship Ice Blocking

Date: 10.11.2024 **Attendance:** 18 **Cost:** $8.74

BMES new potential members and returning members met up on tonga steps to go ice blocking to increase bonding and introduce new members to the opportunities to make connections within BMES

Mentorship Boba Run

Date: 10.15.2024 **Attendance:** 20 **Cost:** $0

BMES mentees and mentors grab boba together to meet and bond. This is so that mentees can learn more about the mentors that are available to them to find the most beneficial match.

Mentorship Speed Mentoring

Date: 10.16.2024 **Attendance:** 20 **Cost:** $0

Mentees had the unique opportunity to meet 4+ mentors in speed mentoring rounds based on their interests and the mentors' previous experiences! Being an effective mentor often requires having relevant experience to your mentee, but oftentimes your personalities and communication styles are even more important to establishing the relationship. Getting to have a quick conversation with potential mentors allows you to see if you have a unique connection with someone!

Mentorship Programs

This year, BMES at UCLA emphasized creating genuine connections between students through mentorship and friendship. We look forward to continually developing these initiatives and helping students form meaningful relationships.

BMES Mentor-Mentee Program

At our annual Fall BBQ event, mentor-mentee pairings are unveiled through a grand reveal. There are typically 2-3 underclassmen to 1 upperclassmen mentor to ensure that a personalized mentor experience is achieved. These pairings last throughout the year so that underclassmen can consistently have someone to ask questions with.

BMES Best Buddies

As a part of our goal to make BMES a diverse and inclusive space, BMES Best Buddies helps members find a new close friend to hang out, study, and spend time with. This program has led to the creation of many friendships that have helped members feel included in bioengineering.

Industry Advisory Board Mentorship Program

The Industry Advisory Board (IAB) is a group of professionals established in the biotechnology, medical device, and pharmaceutical industries. In collaboration with IAB members, we are continuing to develop a mentorship program in which students can seek support from individuals with highly successful careers.

High School Outreach

Continuing last year's high school outreach initiatives, we are connecting with high school students to share what we have learned as college students about bioengineering careers. We hope that these events can help students gain insight into bioengineering.

Franklin High School Panel

Date: 04.10.2025 **Attendance:** 17 **Cost:** $0

Four BMES board members served as panelists for a meeting with Franklin High School. We shared introductions about ourselves, shared our experiences, and answered questions that students had. This was a fun way to connect with high school students thinking about becoming bioengineering majors and share

College Ready Program

Date: 05.03.2025 **Attendance:** TBD **Cost:** $0

Our community outreach chairs will be hosting a session via Zoom on different careers available to bioengineers to high school students. We hope that this can help students gain insight into the bioengineering field.

Industry and Professional Development Activities

Our professional development activities are split into two categories: academic advancement and industry-centered. To support our members academically, we have various events that enhance students' undergraduate experience and expose them to career options. Our Academic Chairs host a diverse set of info sessions and lab tours to provide these opportunities. BMES at UCLA also creates long lasting industry connections. We are proud to co-host our annual biotech career fair and create high quality professional development workshops for members to be ready for their careers.

In this section, we will also highlight our introductory technical projects, as we believe professional development for engineers includes the acquisition of technical skills. These skills are applicable to industry, research, and medicine. All of our technical projects emphasize collaboration and communication, as well as project ideation and execution. BMES at UCLA has 4 year long project teams: Build Team, Cell Team, Design Team, and Research Team. We also have a Workshops Track, where attendees can learn various real-world skills in a lower commitment program. Here, we will describe the activities of our introductory programs, specifically Build Team, Cell Team, and Workshops Track. Descriptions of our more advanced Design and Research Teams will be reserved for the Societal Impact Activities Section.

Academic Advancement Events

Generally, our Academic Chairs are responsible for providing resources related to undergraduate research, graduate school, and medical school. Alongside the events described below, our Academic Chairs also maintain our “Lab Coat Lend Out Library,” in which we allow members to borrow lab coats and safety goggles for their laboratory courses.

Coffee Chat with Professor Kamariza

Date: 11.10.2024 **Attendance:** 10 **Cost:** $47

Professor Kamariza joined us for a coffee chat where she discussed her career trajectory, research focus, and provided general insight into a career in academia. This was followed by a Q&A with students.

Fall Class Planning Workshop

Date: 11.06.2024 **Attendance:** 17 **Cost:** $0

Upperclassmen helped underclassmen with class planning for the Winter quarter in BPlate, a popular dining hall on campus. Students had dinner while discussing course planning, advice for their future course load, and general academic development.

Hsu Lab Tour

Date: 11.12.2024 **Attendance:** 7 **Cost:** $0

BMES collaborated with the Hsu Lab in the Center for Health Sciences (CHS) to do a lab tour for about 10 of our members. Representatives from the lab got a comprehensive tour of the lab space, the research conducted by the Hsu Lab, and got a chance to ask questions about getting involved in research as an undergraduate student.

UC Berkeley/UCSF Info Session

Date: 11.20.2024 **Attendance:** 21 **Cost:** $0

The Program Director for the Masters of Translational Medicine program at UC Berkeley/UCSF came to UCLA to share about their Master's Program and encourage students to apply. Afterwards, a short Q&A was hosted with students to get personal insight into the program design and outcomes. Many students were able to speak with the director afterwards and learn more about varied career opportunities in the bioengineering field.

Winter Class Planning Workshop

Date: 02.11.2025 **Attendance:** 10 **Cost:** $0

The class planning workshop for Spring Quarter was hosted in Zoom, allowing all our members to have a chance to ask questions from upperclassmen about course enrollment and general academic advice.

Undergraduate Research Panel

Date: 02.20.2025 **Attendance:** 16 **Cost:** $0

During the Undergraduate Research Panel, students had a chance to hear from our seven panelists about their experience with research as an undergraduate student. This was an open panel where panelists answered various questions about getting involved in research and provided advice. Attendees also had a chance to ask the panelists questions in a Q&A format.

Mayo Clinic Info Session

Date: 02.25.2025 **Attendance:** 15 **Cost:** $0

Students attended an info session with a representative from the Mayo Clinic's College of Medicine and Science to learn about the institution's PhD, PhD-MD, and MD programs. The session covered details about the application process, program structure, and different campus locations. Attendees also had the chance to ask questions about graduate and medical school.

Coffee Chat with Professor Meyer

Date: 02.25.2025 **Attendance:** 15 **Cost:** $0

In this coffee chat, Dr. Meyer spoke about his academic and research journeys, insights into the graduate school admission process, and other topics in academia. Students had a chance to ask Dr. Meyer for his advice about research and bioengineering in an intimate environment, hearing wonderful insights.

Graduate/Medical School Panel

Date: 05.20.2025 **Attendance:** TBD **Cost:** $0

Students will be able to hear from UCLA Bioengineering alumni who have gone through graduate or medical school. This will be a fantastic event to learn about the application process and what life is like as a graduate or medical student.

Industry-Centered Events

Generally, our Industry Chairs are responsible for maintaining and engaging with our industry connections. Alongside our External Vice President, they search for corporate sponsorships and new event partnerships. They host our flagship events, such as our annual career fair, as well as smaller professional development workshops.

Industry Career Workshop Part 1

Date: 09.14.2024 **Attendance:** 30 **Cost:** $0

In this workshop co-hosted with AIChE, board member volunteers presented on resumes, networking tips, elevator pitches, and company research. Participants were able to ask questions and learn more about how they can be successful for the upcoming recruitment cycle and the career fair.

Industry Career Workshop Part 2

Date: 10.07.2024 **Attendance:** 50 **Cost:** $0

Happening the day before our annual career fair, students were able to thoroughly review their resumes and CVs with student volunteers to prepare for the career fair. Students were able to make beneficial changes to their resume to help them with their upcoming recruitment process.

BMES x AIChE Career Fair

Date: 10.08.2024 **Attendance:** 267 **Cost:** $765.90

In collaboration with the American Institute of Chemical Engineers at UCLA, our Industry Chairs hosted 19 companies in the medical device, biotechnology, pharmaceutical, and other industries during our 20th annual career fair. Students were able to network with representatives and talk about open opportunities. For many attendees, this was the first career fair they will attend during their undergraduate career. Most were able to make exceptionally strong connections and some had internship offers. Overall, it was a good learning experience for future job seekers and a positive interaction with some of the top companies in the bioengineering and chemical engineering space.

BMES x AIChe Gilead Info Session

Date: 04.12.2024 **Attendance:** 14 **Cost:** $0

In collaboration with AiChe, we invited Gilead to host an info session to discuss more about roles at their company following the career fair. Students got the opportunity to learn more about Gilead and possible internship/jobs that they offer, allowing them to learn more about what it's like to be in the pharmaceutical industry.

Science Vendor Expo

Date: 11.15.2024 **Attendance:** 153 **Cost:** $4293.45

Our chapter teamed up with Fisher Scientific to host our annual expo. Top lab equipment vendors such as Eppendorf, Millipore, and Thermo Fisher Scientific will be showing new products and talking about current promotions. BMES strives to serve not only bioengineering undergraduates, but also the UCLA community at large. We utilize our strong connections to industry to provide researchers in various departments (chemistry, biology, bioengineering etc.) access to the newest technology on the market. The Science Vendor Expo is a great opportunity for companies to show off their materials and facilitates the progression of biomedical innovation.

Corning Info Session

Date: 02.20.2025 **Attendance:** 20 **Cost:** $0

As one of our newest sponsors, Corning representatives came in to discuss 3D cell culture and organoid modeling research. Students learned about how they can use Corning products for their research projects while eating pizza and chatting with representatives. Students were able to seek advice for some of their projects and connect with others working on similar research.

Johnson & Johnson Site Visit

Date: 04.04.2025 **Attendance:** 46 **Cost:** $0

We collaborated with several UCLA organizations to give students the opportunity to participate at university site visit event at Johnson & Johnson. Students had the opportunity to learn more about Johnson & Johnson and talk to representatives. This was overall a fantastic opportunity to network with industry professionals and gain insight into a potential future career.

Industry Panel with IAB

Date: 04.17.2025 **Attendance:** TBD **Cost:** $0

Members of our Industry Advisory Board (IAB) will be speaking about their pathway to where they are now and what life is like as an industry professional.

Professional Development Through Introductory Technical Projects

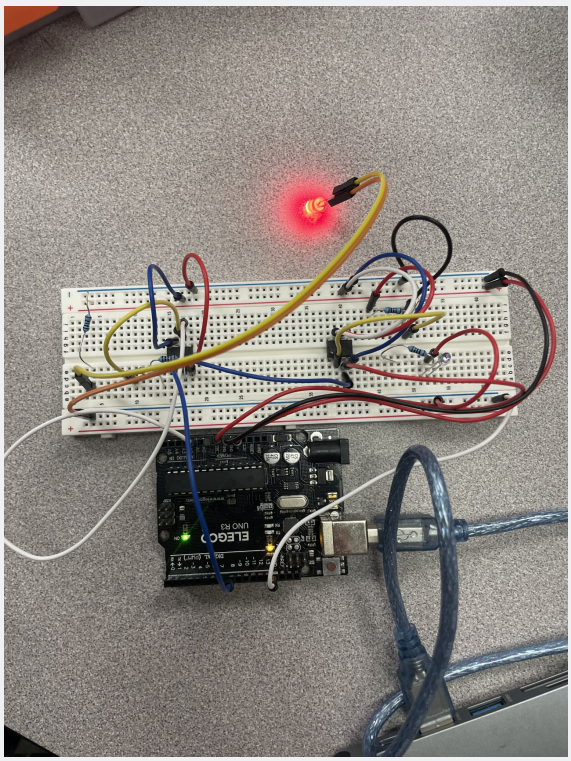
Build Team

Build Team is one of our year-long project teams aimed at introducing technical skills to underclassmen. The team learns skills throughout the year, such as circuitry and arduino, to work towards designing a pulse oximeter. Main goals of Build Team include: gaining hands-on engineering skills relevant for industry and research, applying knowledge learned in courses, and expanding technical skillset with real-world applications. For the 2024-25 year, we will be altering the Build Team curriculum and cohort size to address the drop in attendance from previous years. We were able to successfully maintain attendance this academic year.

	Date	Attendance	Curriculum
Module 1	10.23.2024	24	Intro to Circuits
Module 2	11.06.2024	18	Intro to Coding and Arduino
Module 3	11.20.2024	23	Arduino Analog, Blood, Spectroscopy
Module 4	01.08.2025	15	Processing
Module 5	01.15.2025	16	Advanced Circuitry
Module 6	02.05.2025	17	PCB Design
Module 7	02.12.2025	16	CAD and 3D Printing

Independent Project - Design of a Pulse Oximeter

Total Cost: $660.51



Professional Development Through Introductory Technical Projects

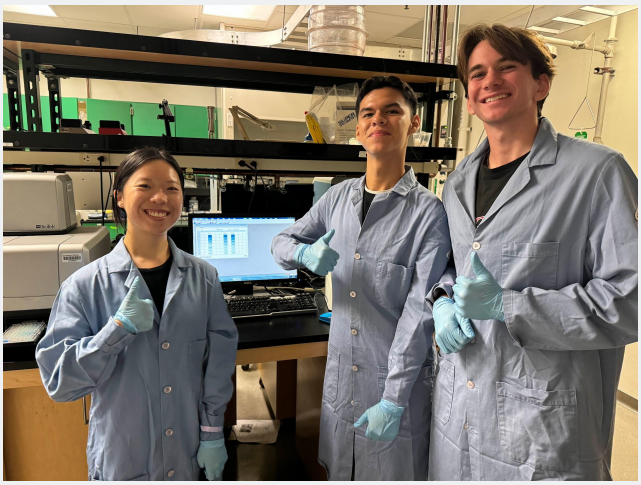
Cell Team

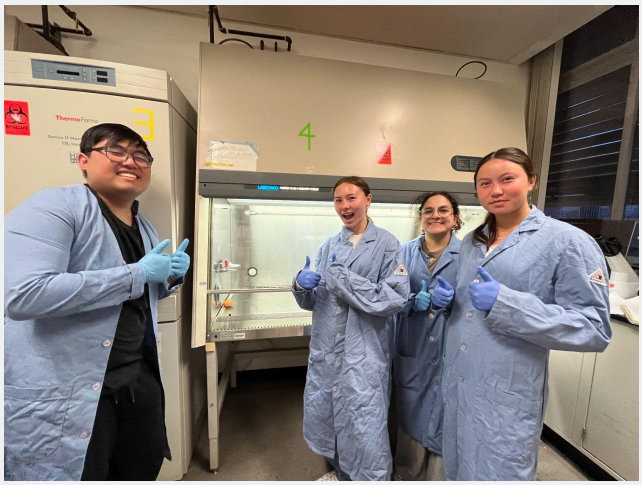
Cell Team is our other year long introductory team geared towards first and second years. On this team, students learn the basics of wet lab research techniques, how to present data, and conduct experiments while working on an independent project.

	Date	Attendance	Curriculum
Module 0	10.21.2024	19	Lab Safety
Module 1	10.28.2024	21	Serial Dilution & Materials
Module 2	11.04.2024	21	Bacterial Culture
Module 3	11.11.2024	15	Cloning and Miniprep
Module 4	11.18.2024	17	Mammalian Cell Culture
Module 5	01.06.2025	20	Cell Gel Encapsulation
Module 6	01.13.2025	N/A	Cancelled due to materials shipping delay
Module 7	01.20.2025	11	Immunostaining
Module 8	01.27.2025	21	Shadowing and Literature Search
Module 9	02.03.2025	14	Journal Club and Intro to Projects
Module 10	02.10.2025	16	Biomedical Research Ethics Discussion
Module 11	02.24.2025	19	Data Analysis
Module 12	03.03.2025	17	Bioengineering Career Paths
Module 13	03.10.2025	19	Protocol Writing and Project Logistics

Independent Research Projects

Total Cost: $1902.90





Workshops

Our Workshops Track provides one-time, low-commitment opportunities for students to expand their technical skills without joining a year-long project team. These are skills students can add to their resumes and overall make them more qualified candidates. **Overall Cost for All Workshops: $230**

Introduction to CAD

Date: 10.17.2024 **Attendance:** 20

Students with no CAD experience were taught how to CAD with a live, step by step tutorial. They were encouraged to design a holiday decoration piece with our help. We gave some suggestions for project ideas like a Christmas tree, light up present, Jack-O-Lantern, and Eid fanoo.

Introduction to 3D Printing/Laser Printing

Date: 10.28.2024 **Attendance:** 20

Students were taught how to laser cut a table for their holiday decoration part. We walked them through a tutorial for the CAD model of the table and then helped them laser cut the part they designed using acrylic that we provided. We also hosted office hours through the next two weeks to help them set up a 3D print at the UCLA Makerspace.

BMES x AIChE Intro to Circuits

Date: 11.14.2024 **Attendance:** 23

In collaboration During this workshop, attendees were instructed on the basics of printed circuit board or PCB design. Our officers provided a lesson on how simple circuits can be translated onto a circuit board.

Intermediate CAD & 3D Printing Workshop

Date: 02.06.2024 **Attendance:** 14

Intermediate CAD workshop using Onshape where we taught students more important features like revolve and sweep in order to make a cup, and taught them how to make an assembly by making them assemble a bionic hand. We then talked about 3D printing on Fusion 360.

Advanced CAD Workshop

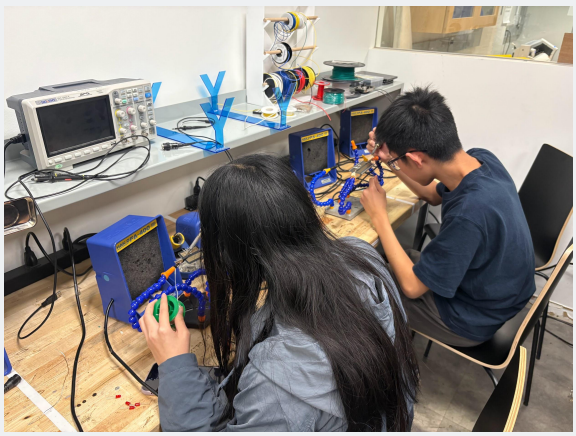
Date: 01.24.2025 **Attendance:** 15

Our workshop officers taught UCLA students advanced CAD techniques on Onshape, created a wooden block calendar for the overall quarter project. This allowed UCLA students to explore skills for potential careers and gave outlet to exercise creativity.

Soldering Workshop

Date: 02.06.2025 **Attendance:** 20

The workshop officers taught UCLA students what soldering was, and soldering techniques. Students had a hands on project where they soldered lights to a perf board. This allowed UCLA students to explore skills for potential careers and gave outlet to exercise creativity.



Woodworking/Project Building Workshop

Date: 03.06.2025 **Attendance:** 4

The workshop officers taught UCLA students how to use a bandsaw, belt sander, jigsaw, and laser cutting. Created wooden blocks for wooden block calendar. This allowed UCLA students to explore skills for potential careers and gave outlet to exercise creativity.

Printed Circuit Board Workshop

Date: TBD **Attendance:** TBD

Matlab Workshop

Date: TBD **Attendance:** TBD

Ansys Simulation Software Workshop

Date: TBD **Attendance:** TBD

Other Technical Events

In this section, we will discuss events related to all of the Technical Projects and/or for all BMES members.

Technical Projects Infosessions

Date: 10.04.2024 **Attendance:** 61 **Cost:** $0

The Technical Vice President and project members presented on this year's technical projects to students interested in applying for the technical projects program. Students learned about the application process, project timelines, and technical projects goals. After the initial presentation, students had the opportunity to ask project managers questions about the tech projects during an informal Q&A.

BioHack

Date: 03.01.2025 - 03.02.2025 **Attendance:** 17 students **Cost:** $1,827.56

Students competed in a two day hackathon to design and pitch a project addressing a real-world problem in medicine. The goal of Biohack is to give students the opportunity to practice real-world design skills in a friendly competition format. Projects included a web application for clear summarization of EHR data and a smart neck brace for stroke rehabilitation. The winning team will be continuing to develop their project for submission to the annual Medtronic/BMES Student Design Competition!

BMES Build Team x Cell Team Social

Date: 04.18.2025 **Attendance:** TBD **Cost:** TBD

Members of our introductory level technical teams will gather to meet new friends and have some fun outside of tech project meetings!

BMES Technical Projects Symposium

Date: 06.05.2024 **Attendance:** TBD **Cost:** TBD

This event is an opportunity for the year-long technical project teams to showcase their work to UCLA professors, industry professionals, other UCLA students, and the general public. All of our tech projects teams present the work that they have done over the past year with posters and presentations.

Societal Impact Activities

Our members have consistently delivered projects that take an incredibly creative approach to challenges in the biomedical space today. Our Design Teams take on student-led, interdisciplinary projects with the goal of prototyping a viable medical device. Throughout the year, they focus on tailoring their designs for maximum impact and positive outcomes. Our Research Team, draws on established fundamental wet lab skills to conduct research addressing an unmet medical need. This year we expanded to running two teams to target two different biomedical issues. Some of our technical project teams have presented at conferences and others have plans to attend conferences later this year. We were fortunate enough to raise nearly $4,000 more to fund our projects for this academic year.

Design Team 1: OriScope: Origami-inspired Soft Pneumatic Inchworm Double Balloon For Robotic Colonoscopy

Colorectal cancer ranks as the third most common cancer worldwide and is the second leading cause of cancer-related deaths. Early detection is crucial for improving survival rates, with colonoscopy being the gold standard for detecting cancerous polyps in the colon. However, traditional colonoscopic procedures face significant challenges in navigating complex and delicate anatomical pathways in the gastrointestinal (GI) tract. These limitations highlight the need for advanced colonoscopic technologies that enhance precision, minimize patient pain, and streamline procedures. OriScope, an origami-inspired Soft Pneumatic Inchworm Double Balloon (SPID) colonoscope, is designed to address such challenges by enhancing robotic control, maneuverability, and procedure efficiency. Equipped with AI-driven real-time polyp detection, OriScope redefines the standard for robotic colonoscopies. With a strong focus on surgeon assistance and patient safety, it introduces cutting-edge innovations that surpass the limitations of conventional colonoscopes.

	Date	**Attendance**
Weekly Meetings	Twice per Week	10-12

Description: A weekly meeting for all subteams to update each other on project progress and set goals for the coming week

Total Cost: $2,478.85

Design Team 2: Kwo: Engineering Personalized Health

Chronic diseases impact millions and drive high healthcare costs, yet most health apps lack the depth to manage their complex, interconnected symptoms. Kwo addresses this gap by integrating wearable data from Apple Health, Fitbit, and Garmin into a centralized platform for real-time analysis. Backed by AWS and Django, Kwo uses machine learning and NLP (via Llama 3.2-3B) for smart event logging and personalized insights. It offers an interactive neural network playground, enabling users to explore trends and understand symptom triggers. With explainable AI and visual tools, Kwo empowers patients and providers alike, aiming for better outcomes, reduced burden, and broader digital health access.

	Date	**Attendance**
Weekly Meetings	Twice per Week	9-11

Description: A weekly meeting for all subteams to update each other on project progress and set goals for the coming week.

Total Cost: $1440.98

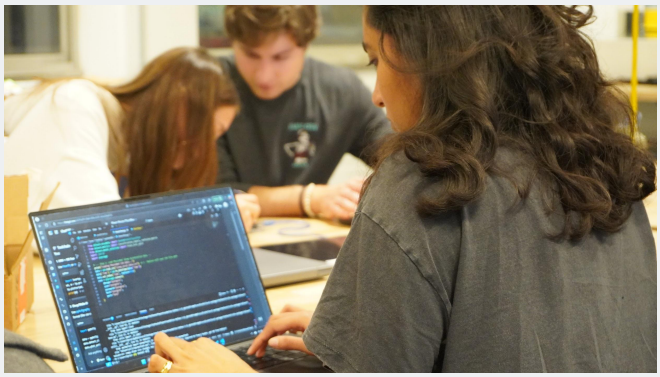
Design Team 3: Somniguard: A Smart Sleeping Mask for Personalized Sleep Therapy

Sleep disorders affect millions worldwide, contributing to a wide range of health complications and reducing quality of life. Effective solutions for sleep improvement remain limited, particularly in personalized, accessible formats. SomniGuard, a smart sleeping mask, addresses this need by combining wearable comfort with biometric tracking, machine learning analytics, and environmental adaptation features to support and improve user sleep. Biometric measurements will include heart rate, movement, and noise. The mask will feature light therapy and gentle wake-up alarms to optimize sleep environments in real time. Developed through an iterative, industry-informed design process, SomniGuard is the product of a multidisciplinary team committed to refining both hardware and software through multiple prototype stages. The project emphasizes modular integration, user safety, and real-world application, ultimately aiming to deliver an accessible, research-backed solution for sleep health and wellness.

	Date	**Attendance**
Weekly Meetings	Twice per Week	10-12

Description: A weekly meeting for all subteams to update each other on project progress and set goals for the coming week

Total Cost: $2,522.66



Research Team 1: Microporous Annealed Particle Gel Coatings for Improved Healing and Antibacterial Properties in Dental Implants

The aging global population and declining oral health have led to an increasing demand for peri-implantitis treatments, which is the leading cause of implant failure. Injectable microporous hydrogels present a promising solution due to their biocompatibility and extracellular matrix (ECM)-mimetic properties, which support cellular growth. Microporous Annealed Particle (MAP) gels are a novel class of self-assembling hydrogels with tunable porosity. These hydrogel particles self-assemble in situ, forming a structure that mimics the ECM, a critical component for supporting tissue regeneration. MAP gels offer a unique combination of biocompatibility, tunable porosity, and ease of application, making them superior to traditional implant coatings.

While MAP gels have shown potential in wound healing, their use in treating peri-implantitis remains largely unexplored. We propose a Gelatin Methacryloyl (GelMA)-based MAP gel to create a stable coating that adheres to the implant surface following UV light exposure. To further enhance healing, the gel will incorporate BMP-2 growth factor to promote osteogenesis, alongside metal nanoparticles to introduce bioactive and antibacterial properties. By controlling the degree of cross-linking in the MAP gel, we aim to optimize the pore size and mechanical properties to enhance osteogenic potential. This innovative approach has the potential to revolutionize implant surface engineering, offering faster recovery and improved long-term implant stability for patients.

	Date	**Attendance**
Weekly Meetings	Once per Week	8-9

Description: A weekly meeting for all subteams to update each other on project progress and set goals for the coming week

Total Cost: $1,285.54

Research Team 2: Analyzing Effects of Co-Incubation of Microplastics and Mammalian Cells & Developing Mechanism of Microplastic Degradation with Bacteria

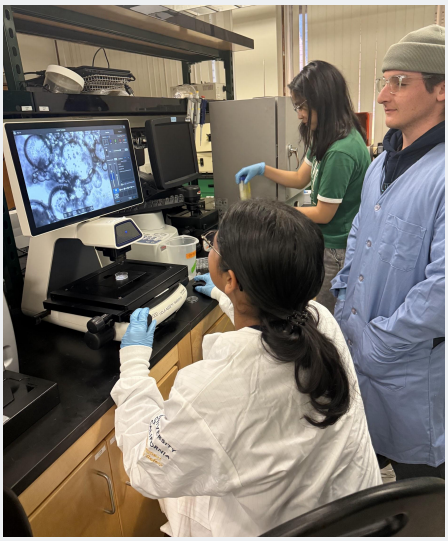
The ubiquity of microplastics (MPs) in everyday life has created growing concerns regarding human exposure to MPs, and their potential consequences to human health. These concerns have motivated researchers to investigate the mechanisms by which MPs negatively impact cellular processes and metabolism. Recent work has uncovered correlational relationships between MP co-incubation with mammalian cells and decreases in cell proliferation and metabolic activity and an increase in oxidative stress. Specifically, MPs are shown to be related to the decrease in expression of various metabolic enzymes including SOD2, and SIRT3. With this in mind, we are interested in exploring if MPs play a role in transcriptional gene regulation to induce lower expression of these metabolic genes. We would also like to explore additional MP effects on metabolic enzymes by co-incubating 1-10µm polyethylene microspheres with NIH/3T3 cells and measuring the expression of genes of interest: HDAC1, a histone deacetylase that influences DNA accessibility for transcription and NMNAT1, a metabolic enzyme related to SIRT3 that regulates NAD biosynthesis. We will also explore the expression of GSTP1-1, which combats oxidative stress after exposure to chemical pollutants, but has not yet been studied with MP exposure. We will utilize several housekeeping genes, including GAPDH, a gene regulating glycolysis, and CHOP, a gene upregulated during cellular stress.

Ultimately, our goal is to contextualize the results of our co-team, who are studying the use of genetically engineered bacteria to degrade polyethylene MPs. With co-incubation of degraded MPs and mammalian cells, we hope to see minimized alteration of gene expression compared to co-incubation without degraded MPs. These findings will allow us to further understand the effects of MPs on metabolism and oxidative stress, opening up the possibility of future therapeutic developments protecting organisms from MP-induced harms.

	Date	**Attendance**
Weekly Meetings	Once per Week	8-9

Description: A weekly meeting for all subteams to update each other on project progress and set goals for the coming week

Total Cost: $1,184.16

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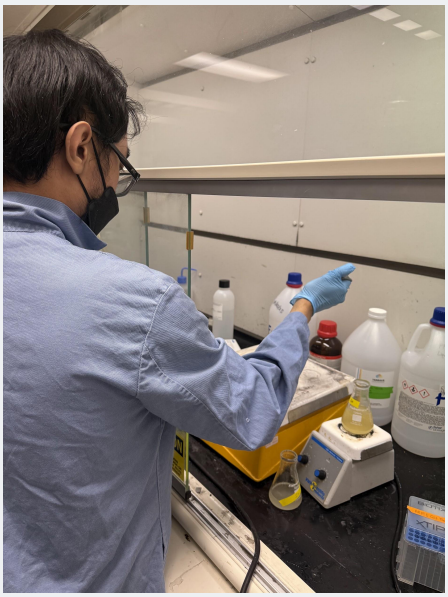

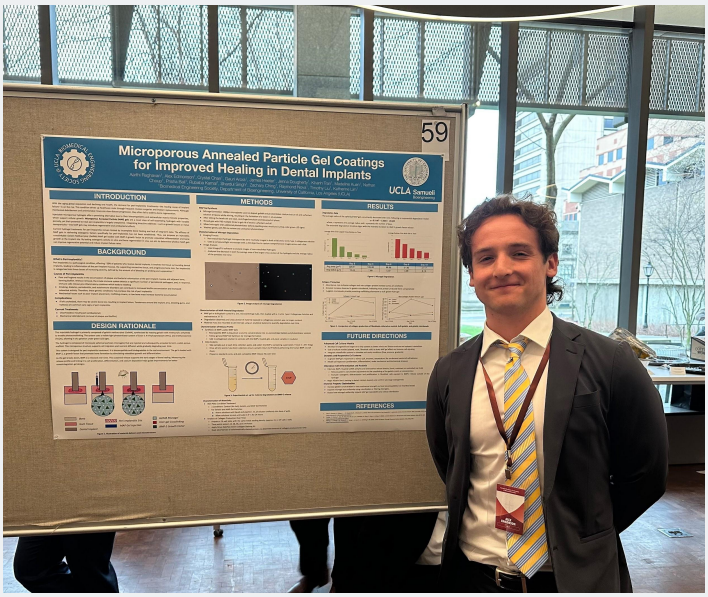
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Effects of Co-Incubation of Polyethylene Microplastics and Mammalian Cells

National BMES Meeting

Being able to represent our chapter at the National BMES Meeting is an honor our Executive Board members do not take lightly. We find that the meeting is extremely beneficial on the individual level and for our entire organization. In 2024, we had 7 of our members attend the meeting in Baltimore. Some of our members participated in the poster presentations, oral presentations, and the rest attended to connect with other chapters. Our attendees thoroughly enjoyed listening to the panels, engaging with presenters at the poster sessions, and speaking to graduate school representatives. Executive Board members met with leadership from other chapters to discuss future collaborations which will be coming into fruition this upcoming month.

We are also very grateful for the awards we have earned as a chapter. In this section, we have summarized the awards we have received from 2018 up until our 2024 Outstanding Achievement Award. We hope we have continued to display our chapter's excellence in this year's CDR and are proud of our achievements.

National BMES Meeting Awards & Presenters

Award Name	Year Awarded	Presenter(s)
Outstanding Outreach	2018	Eva Chen, Meagan Yuen
Commendable Achievement	2019	Mandy Hung, Izabella Samuel
Commendable Achievement	2020	Linnet Chang
Outstanding Outreach Program	2021	N/A
Commendable Achievement	2022	Juhi Mehta, Mary Epperson
Outstanding Mentoring Program	2023	Juhi Mehta, Katie Wu
Outstanding Achievement	2024	Audrey Sogata

Goals for Attending Future Meetings

For the upcoming 2025 BMES Annual Meeting, we have the following goals:

- Encourage more submissions for the poster sessions and the Medtronic Design Competition from our technical project teams and members. We will do this by advertising when abstract submissions are live to our technical project teams and through our BioHack prompts.
- Bring all of our Executive Board members to the Annual Meeting. In 2024, we took 3 out of the 4; however, we believe we need representatives from all branches of our organization to fully take advantage of the networking opportunities. To do this, we will budget more for the travel costs of all of our leadership.
- Track which sessions each representative attended. The purpose of this is twofold: 1) Ensure that our resources are being allocated to engaged individuals and 2) Maximize the number of panels we are able to attend such that we have learned more as an organization from the experience.

Future Directions

As the current BMES at UCLA Executive Board for the 2024-25 school year prepares to graduate, the new BMES Executive Board has been selected based on their commitment to our student organization as well as their creative new ideas that will allow BMES at UCLA to continue growing.

Reflecting back on this year, we are proud of meeting the major goals and milestones we had set at the end of the previous academic year. Looking forward, the outgoing and incoming Executive Boards have collaborated on future directions for our student organization. The goals and expectations are outlined in this section.

Goals Achieved During the 2024-25 School Year

In last year's CDR, our chapter identified 3 major goals. These were:

Increase Social Impacts

This year, we were able to solidify our impact in the EDI space at UCLA Bioengineering by introducing EDI focused professor coffee chats to ensure that members are aware of their impacts as a bioengineer. Additionally with the expansions of our technical projects, more members are able to engage with a project that has the potential to create significant societal impacts. We were also able to increase conference attendance for tech project team members to share their research.

Increase Industry/Faculty Involvement

By consistently keeping in contact with our Industry Advisory Board and continually updating our faculty regarding upcoming events, we have been able to host more coffee chats and events that allow students to interact with industry professionals and academic leaders at UCLA. Our panel style events have been able to help our members gain insight into various bioengineering pathways. In our Biohack and upcoming Technical Projects Symposium student projects will be judged by IAB members and faculty.

Expand Engagement in Mentorship

One of our prime tenets at BMES at UCLA is that members should feel well supported by their peers, and we encourage these support networks through our mentorship programs. This year, to supplement our mentor-mentee pairings, we created the BMES Best Buddies program in which members can form strong friendships with each other based on matching interests. This program has led to the formation of strong bonds amongst our members, and what we hope will be lasting friendships.

Outline of Chapter Expectations for the 2025-26 Year

In preparation for the upcoming year, the new Executive Board members have identified four major goals to bring BMES at UCLA to the next level of excellence:

1. **Improve collaborations within BMES and across UCLA.** We aim to continue to expand our collaboration with other engineering organizations at UCLA (ex. career fair with AIChE); working closely with the Bioengineering Department, BGA, and our Industry Advisory Board; and bringing the various branches of BMES together. Specifically, this entails the proactive integration of these resources into our pre-existing events and resources to make them better. BMES provides many unique resources and networks that could be valuable to the entire engineering community at UCLA, and vice versa, we can leverage our resources to expand upon resources provided by other entities to better support our students' professional, academic, and personal development.
2. **Increase member retention to all events throughout the year.** We plan to do this through increased engagement on Discord and incentivized activities with the Mentorship Coordinator and family heads, and through ensuring personal connections to younger members.
3. **Support our technical project teams in pursuing more opportunities to share their innovations at national conferences and competitions.** We plan to meet with the Project Managers of each team to identify competitions and conferences they aim to attend. We will identify additional travel grants and funding opportunities to maximize the number of team members who can participate in presenting their work.

4. **Increase our industry connections both with companies and individual industry mentors in order to be able to provide our members with increased access to networking and potential career opportunities.** We plan to expand our alumni mentor connections by reaching out through various means such as contacting board members to see if there are any prior industry mentors or supervisors from summer internships, research programs, etc. that I could reach out to in order to see if they are willing to mentor BMES members. And also reaching out through means such as LinkedIn to past BMES at UCLA alumni to see if they would be interested in mentoring as well. Then hopefully expanding on these new connections to see if we could gain new industry sponsorships/collaborations for BMES events.

As the new Executive Board of BMES at UCLA, we are excited for what is to come for our chapter!

Sincerely,

Wesley Luk | President

Ian Morales | External Vice President

Cara Susilo | Internal Vice President

Amelia Rodolf | Technical Projects Vice President

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