

The Biomedical Engineering Society at UCLA

2024 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
Audrey Sogata	Academic Chair	atsogata@gmail.com
Natalie Tsubamoto	Cell Team Project Manager	natsubamoto@g.ucla.edu
Lillian Gong	Academic Chair	lgong021@gmail.com
Viên Le	Cell Team Project Manager	vienlamle03@gmail.com
Charlotte Schmitt	Secretary	schmitt@ucla.edu
Allison Cheng	Build Team PM	acheng22@g.ucla.edu
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Saskia Vaillancourt	Industry Chair	saskiavaillanc@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
New	atsogata@gmail.com	Audrey Sogata	UCLA	2025	Female	Asian

Biomedical Engineering Society at UCLA



2023-2024
Chapter Development Report

The Biomedical Engineering Society (BMES) chapter at UCLA has shown immense 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 2023-24 academic year marks the beginning of multiple new initiatives and programs that increase the breadth of our impact. Our most ambitious program is our Research Team, which is a student-led project that prepares members for conducting research in highly competitive graduate programs. We also dedicated more resources into expanding the capacity of our Cell Team, which teaches introductory wet lab skills and makes students more competitive for positions as undergraduate researchers. To further encourage member involvement in research, we created a series of tours for students to learn more about the various UCLA Bioengineering labs. Another initiative from this year aimed to provide mentorship to high school students and expose them to careers and pathways in the biomedical field. Beyond these new programs, we maintained our positive relationships with companies and alumni, connected more members through stronger recruiting and fun social events, and advocated for greater awareness in equity, diversity, and inclusion. 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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Dear Student Chapter Award Committee Members,

The Biomedical Engineering Society at UCLA has shown strong initiative and tenacity in the expansion of their programs and events. Throughout their exceptional growth, our chapter has always prioritized the creation of a collaborative and supportive environment for biomedical engineers inside and outside of UCLA. This past year, our organization focused on building more opportunities for students to learn from industry leaders and esteemed UCLA faculty, expanding opportunities for hands-on project based learning, and increasing our impact via numerous outreach events.

To help our students identify and progress towards their career goals, we have created a series of coffee chats featuring UCLA Bioengineering professors. These events allow for students to interact with highly successful individuals in a more intimate setting. Attendees gain valuable insight into how to thrive in the bioengineering field, and they initiate strong connections with these mentors. In addition, our chapter has continued to strengthen our mentorship program with the Industry Advisory Board (IAB). The IAB members are established professionals within the biotechnology and medical device industries. They are influential leaders in some of the most successful bioengineering companies (Amgen, Medtronic, Genentech, etc.). The diverse profiles of these mentors allows for mentees to gain guidance that is directly relevant to their goals. This program has garnered great enthusiasm from both mentors and mentees, and we have fostered excellent connections within our matches.

BMES at UCLA prides itself on its commitment to providing ample opportunities for hands-on project based learning. We cater to a wide breadth of interests, ranging from prototyping and medical device innovation to experimentation and wet lab research. This year, we have doubled the number of students in our Cell Team. This technical projects team covers introductory wet lab skills and teaches students how to conduct independent research projects. We have also established a Research Team, which is an advanced cohort that collaborates on a student-led independent research project. Both are highly effective in encouraging students to apply bioengineering concepts beyond the classroom. Our chapter has also continued to expand our lower commitment workshops that teach fundamental skills. This year, our workshop officers presented their lessons through the lens of real-world applications. This helps our students visualize the utility of their new skills, ultimately empowering individuals to employ them in their future careers.

Additionally, our chapter values inspiring others in exploring topics within the bioengineering space. The curriculum taught in our flagship program, Reaching and Inspiring Students in Engineering (RISE), continues to improve and adapt with students' interests. With lessons updated to make them more engaging, RISE continues to inspire interest in engineering at underserved schools. We also have consistently brought ~100 middle and elementary school students to campus each quarter to engage in STEM-based activities and take a glimpse into life as a UCLA student. New to this year, we have hosted mentorship events to teach high school students about the different career paths in bioengineering and about life in college. Some of these collaborations have been with BMES chapters at the high school level, and we are able to share the activities our organization has established and provide guidance to their leadership.

One area of improvement for the upcoming year is accelerating our impact in the promotion of equity, diversity and inclusion (EDI). Although our chapter established a committee within our General Board to put on these types of events, it is clear that our chairs do not have the bandwidth to host our desired number of EDI events on top of fulfilling their original responsibilities. As such, we have created an EDI chair position for the 2024-25 election cycle to ensure that we are promoting a positive and inclusive community.

Overall, BMES at UCLA has been vital in enhancing the student experience for individuals inside and outside of the bioengineering department. I have great pride in the growth our organization has displayed, and the following report is a testament to all of our accomplishments from the past year. Thank you for your consideration.

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



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Administrative Report



To maintain and grow our events and resources for the over 200 members of the UCLA BMES chapter, the infrastructure of our General Board is optimized for efficiency in communication and execution. Responsibilities are divided amongst 49 people within our General Board, which includes the 4 members of the Executive Board and the 6 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 master spreadsheet with the time and description for all of our events. This is coupled with 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 goes 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: 229
Number of National Members: 10

BMES Board Responsibilities

Position	Name	Responsibilities
President	Kelly Tamura	Oversees chapter operations, liaison with other UCLA organizations
External Vice President	Shannon Li	Oversees finances and acts as industry liaison
Internal Vice President	Robin Shi	Oversees social events and mentorship
Technical Projects Vice President	Ishaan Mody	Oversees technical projects
Treasurers	Ian Morales and Isabel Thomas	Oversee finances and apply for UCLA funding
Finance Committee	Michelle Haung	Assists treasurers
Secretary	Charlotte Schmitt	Oversees recordkeeping and communications
Community Outreach Chairs	Adriann Brodeth, Tanya Lee, and Kaimana Lum	Oversee community outreach programs
Community Outreach Committee	Khanh Tran, Evelyn Bennett, and Yuna Kim	Assist Community Outreach Chairs
Industry Chairs	Jay Lesny Drake, Wesley Luk, and Saskia Vaillancourt	Oversee industry relations and events
Academic Chairs	Lillian Gong and Audrey Sogata	Oversee academic events and alumni affairs
Academic/Industry Committee	Teagan Carr and Fiona Zhang	Assist Industry and Academic Chairs
Mentorship Coordinator	Bena Patel	Oversees mentorship events
Mentorship Family Heads	Karina Bender, Hannah Cox, Zoe Latham, and Katie Stone	Oversee individual mentorship families
Publicity Chairs	Emika Saito and Madeline Young	Oversee publicity and media presence

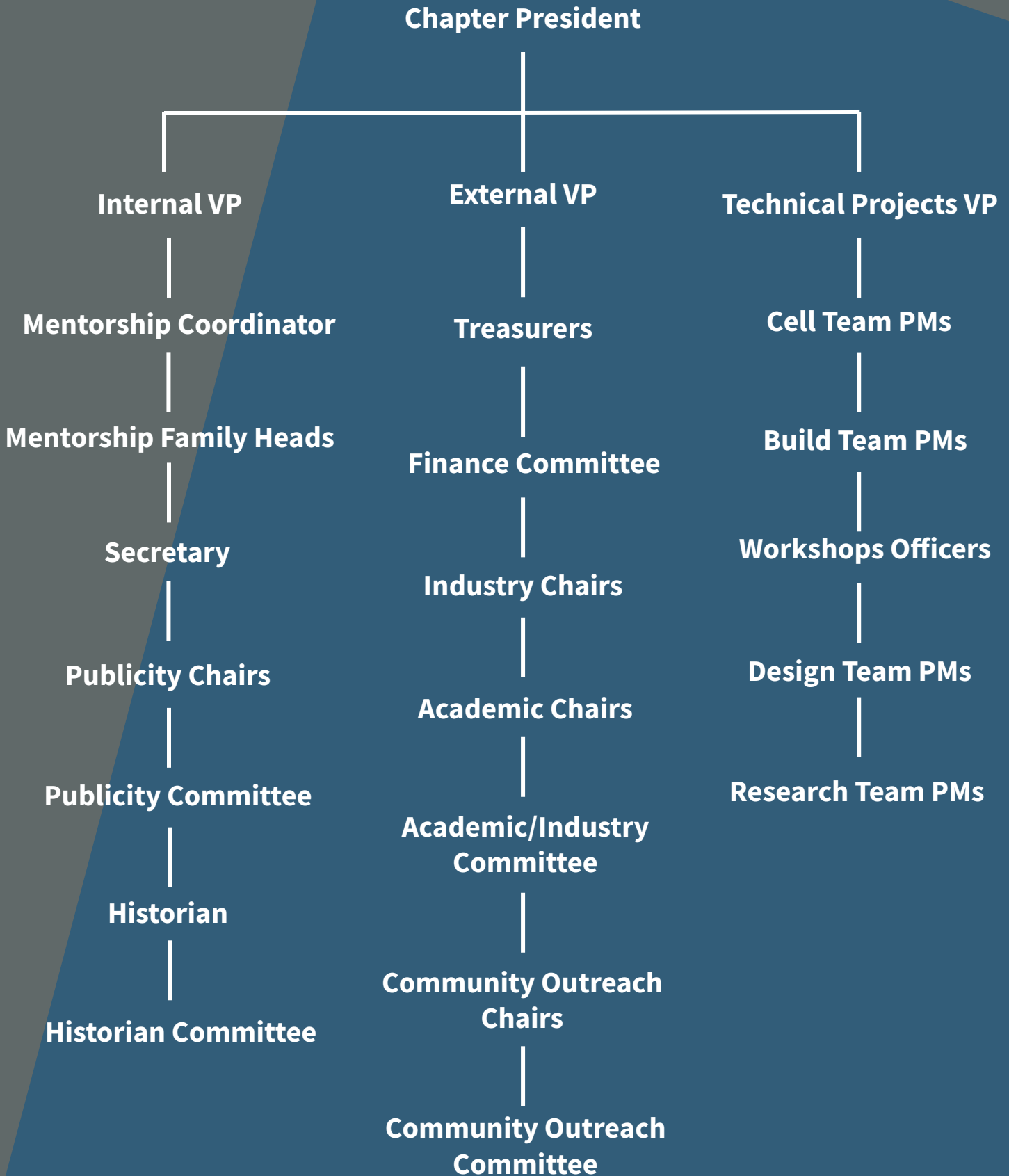
BMES Board Responsibilities

Position	Name	Responsibilities
Publicity Committee	Cara Susilo and Jasmine Tadros	Assist Publicity Chairs
Historian	Asher Kim	Oversee media documentation of events
Historian Committee	Douglas Wu	Assist Historian
Workshops Officers	Swetha Palakur and Amber Kashay	Oversee technical workshops
Build Team Project Managers	Allison Cheng, James Fu, Aaron Li, and Andrew Tran	Oversee Build Team
Cell Team Project Managers	Viên Le, Amelia Rodolf, Iris Sloan, and Natalie Tsubamoto	Oversee Cell Team
Design Team Project Managers	Alexandra (Lexi) Jensen, Charmaine Tan, Rachel Yu, Evan Bird, and Lara Rulloda	Oversee Design Teams
Research Team Project Managers	Emily Lin and Rika Yang	Oversee Research Team



BMES BOARD

Management Overview



UCLA BMES Meetings

General Meetings

Executive Board and General Board Meetings

01 General Meetings and Agendas

	Date	Attendance	Agenda
Fall GM	10.05.2023	85	Introduce 2023-24 General Board Members, announce committee and technical projects applications, announce Fall Quarter events
Winter GM	01.10.2024	50	Introduce 2023-24 Committee Members, announce Winter Quarter events
Spring GM	04.03.2024	32	Introduce 2024-25 Executive Board Members, announce Spring Quarter events

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.

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 two weeks.
3. Chair updates: officers discuss relevant updates and ask for help from the rest of the General 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. These include the sale of food and Instagram Bingo Cards in which people can donate to BMES by paying for board members to perform entertaining tasks. 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 Magnify at the California Nanosystems Institute 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	\$298.20	\$181.78
Fundraisers	\$1218.01	\$2254.13
Social	\$1009.71	\$1349.24
Community Outreach	\$13685	\$13685
Mentorship	\$347.14	\$0
Industry and Professional Development	\$6320.12	\$7504.13
Technical Projects	\$7800	\$10159.00
Total:	\$30,678.18	\$35,133.28
Net Change in Balance:		+\$4,455.10

Fundraisers

Membership Dues & T-Shirt Sales

Date: Ongoing

Net Amount Raised: \$1,491.99

Over the course of the school year, UCLA BMES 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 UCLA BMES!

Sharetea Fundraiser

Date: 12.08.2023

Net Amount Raised: \$17.20

BMES collaborated with Sharetea in Westwood for a fundraiser. Students went to the popular boba drink spot and supported our organization.

Chipotle Fundraiser

Date: 03.04.2024 **Net Amount Raised:** \$116.94

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.

Instagram Bingo

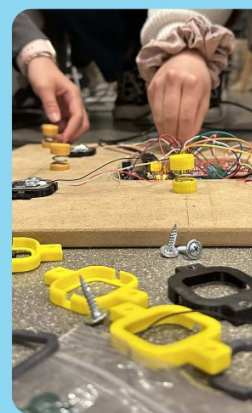
Date: 03.05.2024 - 03.08.2024 **Net Amount Raised:** \$628

BMES organized a fun bingo dare card that members would put on their Instagram stories for the span of a few days. Friends, family, mutuals could donate money amounts corresponding to interesting tasks that members would do and post! It made for an engaging and interactive fundraiser and participants had an incentive prize for the person who raised the most money.

Total Amount Raised: \$2254.13

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 11.06.2023 - 12.06.2023. We raised a total of \$4,359 specifically for our Design and Research Teams.



SUPPORT BIOMEDICAL INNOVATION!

BMES Technical Projects Crowdfunding Campaign is **LIVE through 12/8!**

PLEASE DONATE!

spark.ucla.edu/UCLABMES



Overview of External Funding:

Name	Amount
[UCLA] Campus Support for Student Programming	\$6815.57
Industry Sponsorships	\$1500
[UCLA] Contingency Finance Application	\$319.67
[UCLA] Engineering Alumni Association	\$5800
[UCLA] Recreation Event Fund	\$1065.60
[UCLA] Academic Success Referendum Fund	\$2965.15
[UCLA] Campus Programs Committee Youth Programming Fund	\$5918.24
[UCLA] Community Activities Committee Regular Fund	\$7767.23
Total:	\$32,142.46

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 2023 BMES Annual Meeting. From those contacts, we have co-hosted events to foster strong interchapter relationships. 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. The UCLA BMES mentorship program connects upperclassmen and underclassmen students within larger mentorship families. The program establishes infrastructure for new students to obtain guidance from individuals who are further along in their undergraduate experience. 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. 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 imperative for connecting our members and recruiting new students to our organization. Being a bioengineering major at a large university can be daunting, and it is important to set up support systems upon arriving as a first year student. Members form long lasting relationships, and we often see people who love our chapter's community and come to multiple socials. 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. BMES at UCLA wholeheartedly asserts that having relationships outside of the classroom is necessary for the building of a successful individual.

This section of the CDR will also touch upon our events centered around equity, diversity, and inclusion (EDI). For the 2024-25 year we will be electing an EDI officer to host more of these events. We are looking forward to making a more inclusive environment with this new position.

Department-Wide Celebrations

Once a quarter, UCLA BMES 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: 9.26.2023 and 9.27.2023 **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: 11.27.2023 **Attendance:** 90 (1 graduate, 2 faculty) **Cost:** \$2751.19

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

BioE Ball

Date: 02.23.2024 **Attendance:** 70 **Cost:** \$1234.73

This is an opportunity to mingle with one another and learn more about one another through various fun activities. Our theme this year was a Masquerade. Food and drinks were included in the event as well as supplies for people to customize their own masks.

End-of-the-Year Banquet: Enchanted Garden

Date: 05.31.2024 **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: 10.06.2023-10.08.2023

Attendance: 28

Cost: \$739.34

Each Fall Quarter, the incoming BMES General Board travels to Big Bear to participate in a weekend of team-building activities and bonding. 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: 10.20.2023

Attendance: 105

Cost: \$1,016.86

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 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.

Shabu Shabu Night

Date: 11.19.2023

Attendance: 20

Cost: \$0

BMES members went to enjoy dinner together at ShabuShi, a Japanese hot pot restaurant in the LA area. Shabu Shabu Night was great for fostering a strong community within BMES through delicious food and a fun outing.

Spring Retreat

Date: 04.20.2024-04.21.2024

Attendance: 27

Cost: \$1126.44

BMES board members went to Lake Hollywood park and then stayed at an Airbnb in Glendale for a weekend of bonding and fun!



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.

Multicultural Night

Date: 03.06.2024

Attendance: 30

Cost: \$75.22

Our annual Multicultural Night involves both a potluck of foods from members' assorted cultures and a chance to discuss cultural traditions, stories, and histories together with other bioengineers. Attendees enjoyed a variety of foods and talked about their cultural backgrounds in a dedicated discussion space.

EDI at UCLA Bioengineering Panel

Date: TBD, Week 9 of Spring Quarter 2024

Attendance: TBD

Cost: TBD

We will be hosting a panel in which leaders of the UCLA Bioengineering DEI committee (Dr. Andrea Kasko and Dr. Aaron Meyer) will be discussing the importance of EDI at UCLA and the field of bioengineering at large.



Multicultural Night

Come learn about other cultures and share your own with a potluck!

WHEN: Wednesday, 3/6 @ 6PM
LOCATION: EV4101
RSVP link in caption!

The poster features a central illustration of a plate with salmon, asparagus, and broccoli, flanked by a wooden fork and knife. Sprigs of rosemary are placed around the plate. In the bottom left corner is the UCLA Biomedical Engineering Society logo, and in the bottom right corner is the UCLA Samueli School of Engineering logo.

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. Our chapter predominantly executes virtual events with other chapters; however, we are looking to meet in person for the upcoming year. We also hope to extend beyond joint social events and into events for professional development. This would allow for transfer of valuable knowledge to improve the success of all of our members.

UCLA x USC x UCR Game Night

Date: 01.25.2024 **Attendance:** 18 **Cost:** \$0.00
Collaborating Chapter(s): USC and UCR

This was a virtual event in collaboration with the UCR and USC BMES chapters. Attendees went into zoom breakout rooms to play games with undergraduates from other schools. We also made sure to do ice breakers in every group so that people could interact more. UCLA BMES is dedicated to staying connected with other chapters. We believe this facilitates the transfer of best practices and resources amongst schools. Events like these ensure we stay connected and make continual improvements to the undergraduate bioengineering community.

In Progress Event

Date: TBD **Attendance:** TBD **Cost:** TBD
Collaborating Chapter(s): UCR

Communication with the BMES UCR Vice President is ongoing to have one last social before the end of the academic year. As of now, we are unsure if the event will be in person or virtual, but we are excited to meet with UCR again!



Outreach Activities

Members of UCLA BMES 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 come back around 3 pm.

BECOME A

RISE VOLUNTEER!

Reaching and Inspiring Students in Engineering

RSVP: <http://lnkii.in/BMESRiseVolunteer>

Help teach engineering concepts to students from underserved communities!

When: Friday 1/19 11:00 AM - 3:00 PM

Where: James Madison Middle School

Training: Wednesday 1/17 at 5:00 PM in EV 5101



RISE Lesson Plans

Over the past five 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 \$7,767.23 for transportation, supplies, and food.

Lesson Title	Date	Description
Intro to Arduino	11.02.2023	Introduced basic concepts in circuitry including current, resistance, and Ohm's Law in addition to how it applies to Arduino components. Afterwards, we hosted a participatory quiz to test their application of this knowledge.
Simple Circuits and Code	12.06.2023	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.
Introduction to CAD (Using TinkerCAD)	01.19.2024	Introduced Computer Aid Design using TinkerCAD, showcasing various real-world applications and modeling how mechanical design affects forces and motion through a seesaw example. We also practiced how to model familiar shapes such as LEGO to test its interactivity with other shapes.

CAD with Onshape (Part 1: Introduction to Basic Skills)	02.02.2024	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)	02.23.2024	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)	03.08.2024	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.
Introduction to Final Project	04.26.2024	We first had the students brainstorm and sketch a design for their final project which combines their Arduino and CADing skills. We then reviewed CADing operations and allowed them time to work on their final design which we will 3D print.
TBD	05.10.2024	TBD
TBD	05.24.2024	TBD



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 held three Science Days to impact 3 different Title I schools in the LA area.

Fall Science Day

Date: 11.30.2023 **Attendance:** 40 UCLA student volunteers, 12 chaperones, 118 elementary school students
Cost: \$2,959.12

This quarter we brought ~100 5th grade students from Esperanza Elementary. Our volunteers led various activities, including foldable microscopes (analyzing plant samples from the botanical garden), a visit to the planetarium, and a tour around UCLA.

Winter Science Day

Date: 02.29.2024 **Attendance:** 40 UCLA student volunteers, 12 chaperones, 118 elementary school students
Cost: \$2,959.12

This quarter we brought 111 7th grade students from John H Liechty Middle School. Our volunteers led various activities, including powering up rovers, a visit to the planetarium, and a tour around UCLA.

Spring Science Day

Date: 05.23.2024 **Attendance:** TBD **Cost:** TBD

This quarter we are bringing ~90 7th grade students from James Madison Middle School. Our volunteers will lead various activities, including powering up rovers, a visit to the planetarium, and a tour around UCLA.

Spruce It Up

Date: 10.21.2023 **Attendance:** 9
UCLA student volunteers **Cost:** \$0

Our Community Outreach Chairs led a group of volunteers to "Spruce it Up" at Westminster Elementary School. During the event, volunteers helped care for an educational garden on an elementary school campus. Through our participation, BMES supported the education of elementary school students in the LA area. With the hands on activities in the garden, Westminster Elementary finds higher engagement from students in their environmental science curriculum.



Mentoring Activities

The UCLA BMES 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 wide variety of events to make a more intimate environment within our large club. At our general meetings, the Family Heads advertise the types of events they will put on so that each family is composed of like-minded individuals.

Within the families, we also have a mentor-mentee matching system. This year, we implemented a “rush” system, similar to that of Greek life. Instead of mentees filling out a form with their general likes and dislikes, they could attend rush events at the beginning of the year to meet the mentors and make organic connections. We also had a book of all the mentors and a quick biography so that mentees could get a better idea of which upperclassmen they would like to mentor them.

Our mentoring activities also extend beyond the members of our chapter. This year, we have established a mentorship program with high school students. During virtual sessions, our members talk about biomedical engineering and college life as a whole. We are especially excited to work more with the Leigh High School and Pine View High School BMES chapters. Our goal is to connect our leadership to theirs and help their chapters grow in their activities. Our presence in the biomedical engineering space has garnered the attention of individuals that are excited to mentor our members. We have a strong alumni mentorship program in which past UCLA Bioengineering students meet with current students to talk about their careers after undergrad. Our IAB mentorship program with industry professionals is in its second 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 our CDR, we detail the events put on by the Adenine, Cytosine, Guanine, and Thymine Family Heads.

Adenine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Adenine Knives Out Watch Party	This was the first event exclusively for the Adenine Mentorship Family. Attendees were invited to destress for a fall movie night complete with snacks and apple cider.	11.03.2023	10	\$10
Tea Blend Workshop	This was an event where attendees made their own tea blends and had tea and chatted. It was a relaxed event and everyone learned some fun tea facts.	01.24.2024	8	\$50
Tangled and Vision Board Night	[Collaboration with Cytosine] Chill studying and was meant to be vision boards, but ended up looking through magazines and chatting.	03.13.2024	10	\$30
Tennis Round Robin	Attendees are invited to play other BMES members in a fun, low stress round robin tournament.	5.4.2024	TBD	TBD



Cytosine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Cytosine Game Night	This was the first event exclusively for the Cytosine Mentorship Family. Attendees were invited to play games and mingle over snacks.	11.16.2023	20	\$60.82
Guanine + Cytosine Friday Night Vibes	[Collaboration with Guanine] This was the first combined family event between Guanine and Cytosine Mentorship families. Attendees were invited to come and hang out in a low stress environment, mingling with other family members and enjoy refreshments.	01.29.2024	35	\$49.31
Cytosine Sawtelle Scurry	Attendees utilized UCLA's student transit pass and traveled together from UCLA campus to Sawtelle Blvd. to enjoy Korean food, boba, and shopping at Japanese stores.	2.10.2024	3	\$0
Tangled and Vision Board Night	[Collaboration with Adenine] Chill studying and was meant to be vision boards, but ended up looking through magazines and chatting.	3.13.2024	10	\$30
Cytosine Cram and Crunch	Attendees are invited to a study night, complete with snacks, before midterms	5.8.2024	TBD	TBD

Hannah! Cytosine Family Head

Fam Color: BLUE

Events!

Boba Runs
Cookies + Study

Vibes!

Chill
Homebody



Guanine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Guanine Botanical Gardens Walk	This was the first event exclusively for the Guanine Mentorship Family. Attendees were invited to walk through the UCLA Botanical Gardens and get coffee at a local coffee shop.	12.1.2023	4	\$0
Guanine + Cytosine Friday Night Vibes	[Collaboration with Cytosine] This was the first combined family event between Guanine and Cytosine Mentorship families. Attendees were invited to come and hang out in a low stress environment, mingling with other family members and enjoy refreshments.	01.29.2024	35	\$49.31
Guanine Gym Night	Attendees met at the John Wooden Center to workout and bond together. This was an event to improve morale during midterms and encourage members to destress in a healthy way.	02.01.2024	8	\$0
Guanine Trivia Night at Barney's	The Guanine Family went to Barney's Beanery for Trivia Night. Trivia night allowed for guanine members to hang out in a relaxed environment and participate in a team-building event.	02.21.2024	7	\$0
Guanine Potluck	Guanine members brought and shared food at a mentorship head's apartment to have a nice dinner together.	04.04.2024	5	\$0
Guanine + Cytosine Friday Night Vibes Pt. 2	[Collaboration with Cytosine] Back due to popular demand, the Guanine and Cytosine Family Heads invited members to hang out in a low stress environment, mingling with other family members and enjoying refreshments.	04.13.2024	10	\$9.27

Guanine Beach Bonfire	Guanine organized carpool for members to participate in bonfire night at Dockweiler Beach. Activities including going to the beach, swimming, making a bonfire, and making smores.	04.27.2024	10	\$30.43
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Thymine Mentorship Family

Name Of Event	Description	Date	Attendance	Cost
Thymine Frog Night	This was the first event exclusively for the Thymine Mentorship Family. Attendees were invited to create small stuffed-animal frogs and hang out with a fun arts and crafts project.	11.09.2023	25	\$0
Treasure Planet Movie Night	Relaxed movie night where the Thymine Family watched Treasure Planet and ate snacks. It was an event for destressing before midterms and brought members closer together.	01.26.2024	6	\$0
Thymine Bucket Hat Making	The Thymine family made bucket hats together using the sewing machines at the UCLA Makerspace.	02.17.2024	5	\$0
Final Thymine Frog Night	Due to high demand, this event will be hosted again by the Thymine Family Head. Attendees will be able to make small stuffed-animal frogs.	05.10.2024	TBD	TBD



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. 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.

Ice Blocking with BMES

Date: 09.30.2023

Attendance: 30

Cost: \$28

Potential mentees were able to meet and mingle with mentors while engaging in the UCLA tradition of ice blocking.

Mentorship Potluck Picnic

Date: 10.05.2023

Attendance: 25

Cost: \$0

The second event in our mentorship "rush" series, the potluck picnic allowed mentees to connect to more mentors and interact with more BMES members in general. Attendees brought their favorite snacks and got introduced to new people.

Treasure Hunt

Date: 10.13.2023

Attendance: 25

Cost: \$0

The third event in our mentorship "rush" series, attendees worked together in a pirate-themed scavenger hunt around campus. The activity allowed for further, light-hearted interaction between mentees, mentors, and our mentorship team.

BMES Boba Run

Date: 10.17.2023

Attendance: 35

Cost: \$0

Our fourth and final event in our mentorship "rush" series, attendees went to get boba in Westwood with other BMES members. This was the last opportunity for mentors and mentees to connect before the pairings were announced



High School Mentorship Programs

This year, UCLA BMES hosted some events in our latest initiative to provide more mentorship and outreach to students at the high school level. We look forward to conducting more of these events and hopefully establishing a mentorship program to give more individualized support.

College Ready

Date: 10.23.2023

students

Cost: \$0

Attendance: 3 UCLA students, 1 high school teacher, 30 high school

College Ready is an opportunity for high school students to hear from current college students about careers and pathways in the biomedical field. Volunteers share their college experiences, answer questions about majors in the biomedical field, and open doors to other pathways that they have not thought of before.

UCLA BMES Mentorship Meeting

Date: 04.30.2024

Attendance: 11 high school students, 2 UCLA mentors

Cost: \$0

During this event, we met with students from the BMES chapters at Pine View High School and Leigh High School. We presented about our chapter's activities, different career paths in bioengineering, and answered questions about being a UCLA student in general

Alumni Mentorship Program

Our chapter maintains a yearlong mentorship program, pairing together undergraduate students with alumni based on shared interests and career goals. Each year, we have a great variety of alumni who have made careers for themselves in the bioengineering industry, in product management, graduate school, medical school and more.

Participating Alumni (19): Rohan Chawla, Jennifer Wang, Laila Rad, Alex Ma, Erik Reinertsen, Jeeyoung Choi, Katie Wu, Aditya Sivakumar, Mimi Carson, Griffith Hughes, Anya Bekhtel, Gregory Suematsu, Linnet Chang, Emily Yan, Meagan Yuen, David Li, Mary Epperson, Hilary Yen, Smiti Narayanan

Alumni Coffee Chat

Date: 11.29.2023

Attendance: 21

Cost: \$0

Our undergraduates have always found alumni mentorship to be a fruitful and helpful experience, and our graduated students consistently stay involved to work with current BMES members. This coffee chat emphasizes the formation of organic connections and increased familiarity with the alumni mentors and their backgrounds.

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.

Participating IAB Mentors (10): Dr. Zoe Deng, Dr. Linda Narhi, Dr. Hengchu Cao, Scott Gibson, Dr. Ken Hamilton, Dr. Amit Vaish, William Pratt, Austin Copp, Dr. Michael Miller, Dr. Kollbe Ahn

IAB Mentorship Panel

Date: 01.29.2024

Attendance: 29

Cost: \$0

The IAB Mentorship Program is kicked off by a career panel where members of IAB come and talk about their experience in industry. Students asked a variety of questions and got to learn about each of the mentors. Ultimately, we send out a pairing survey for mentors and mentees to be matched up and meet frequently (~once a month).



UCLA BIOMEDICAL ENGINEERING SOCIETY

**BMES INDUSTRY ADVISORY BOARD (IAB)
MENTORSHIP PROGRAM**

CAREER PANEL

MONDAY 1/29 4PM @ EV 5101

- MEET IAB MENTORS
- INSIGHTFUL CAREER ADVICE
- ATTEND IF YOU WOULD LIKE AN INDUSTRY MENTOR!

RSVP BY FRIDAY 1/26
[HTTP://TINYURL.COM/BMESCAREEPANEL](http://tinyurl.com/bmescareepanel)

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 a variety of events and initiatives that enhance students' undergraduate experience and expose them to options for further education. Our Academic Chairs put on a diverse set of panels and lab tours to provide these opportunities. UCLA BMES also creates long lasting industry connections. We are proud to host the most successful bioengineering-related career fair at UCLA. In addition, we create high quality professional development workshops for our students to be ready for their careers upon graduation.

This section of our CDR will also highlight our introductory technical projects, as we believe professional development for engineers also 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. UCLA BMES has 4 year long project teams: Build Team, Cell Team, Design Team, and Research Team. We also have a Workshops Track, in which 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. We will also touch upon the events meant for the entirety of BMES Technical Projects. 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.

Fall Class Planning Workshop

Date: 11.09.2023

Attendance: 10

Cost: \$0

Our class planning workshops are a great way for underclassmen to get advice on classes, professors, and fulfilling requirements. It is also a good way for those who are taking the same class in the future to connect with each other ahead of time.

BGA x BMES ESAP Infosession

Date: 11.16.2023

Attendance: 10

Cost: \$0

We hosted an infosession covering UCLA Engineering's Exceptional Student Admissions Program, a route in which current UCLA engineering undergraduates can obtain automatic admission into their major's masters degree program. Current ESAP participants (members of the Bioengineering Graduate Association, or BGA) talked about what to expect in the degree, and our Academic Chairs detailed how you can take advantage of this opportunity. ESAP is a program that not many engineering students are aware of, and it is important to stay on top of the deadlines to qualify for the automatic admission. Beyond just informing students about the ESAP process, having masters student panelists to talk about the degree was very helpful for attendees.

Coffee Chat With Professor Kamei

Date: 01.23.2024

Attendance: 18

Cost: \$30

Our close connections to the UCLA Bioengineering department are the number one way that our members can have valuable 1-on-1 interactions with bioengineering professors. This enhances opportunities for research, professional development, and mentorship. This was a coffee chat with Professor Kamei where students were able to ask Professor Kamei about his career pathway and for academic advice.



Professor Kamei Lab Tour

Date: 02.09.2024 **Attendance:** 9 **Cost:** \$0

Undergrads had the opportunity to take a tour of Dr. Kamei's lab and learn from a grad student what kind of research the lab conducts. They had the opportunity to have an interactive experience and ask questions to aid in their ability to seek future research opportunities.

Coffee Chat with Professor Di Carlo

Date: 02.13.2024 **Attendance:** 18 **Cost:** \$0

Professor Di Carlo and undergraduate students were able to have a discussion regarding start-up culture and Professor Di Carlo's important work in the field of microfluidics. Attendees emerged with a new connection to Dr. Di Carlo and a better understanding of the subjects his lab covers.

Professor Di Carlo Lab

Tour

Date: 02.26.2024 **Attendance:** 6 **Cost:** \$0

Undergrads had the opportunity to take a tour of Dr. Di Carlo's lab and learn from a grad student what kind of research the lab conducts. They had the opportunity to have an interactive experience and ask questions to aid in their ability to seek future research opportunities.

Undergraduate Research Panel

Date: 04.10.2024 **Attendance:** 15 **Cost:** \$0

Undergraduate students from various Bioengineering research labs served on a panel for undergraduate students interested in research to ask questions to learn about other's experiences and get advice.



BMES x Med Mentors Infosession

Date: 05.01.2024 **Attendance:** TBD **Cost:** \$0

Current UCLA David Geffen School of Medicine students will be giving a quick presentation on various pre-med resources for UCLA undergrads. They will also be answering questions regarding these resources and interacting with members who are interested in medical school.

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.

Resume & LinkedIn Workshop

Date: 10.11.2023

Attendance: 13

Cost: \$0

Attendees learned how to create a stellar profile to impress any recruiter. Upperclassmen students with more career experience provided mentorship and advice in preparation for our annual career fair. Attendees felt more confident and capable in future networking and recruiting events.

Elevator Pitch & Etiquette Workshop

Date: 10.12.2023

Attendance: 10

Cost: \$0

This was another professional development workshop to help students stand out at networking and recruiting events. For this event, students learned how to prepare elevator pitches.

BMES x AIChE Career Fair

Date: 10.17.2023

Attendance: 270

Cost: \$1220.77

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 19th 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.



AICHE & BMES presents:
19th Annual Career Fair
Tuesday, October 17th

Register Now!
bit.ly/companybooklet23

9am - 3pm
Ackerman Grand Ballroom
RSVP at bit.ly/2023-careerfair

The poster features a dark blue circular graphic on the left containing a megaphone icon. To the right is a yellow pencil icon. At the bottom right is a large magnifying glass icon. Three orange buttons with white text provide event details.



Science Vendor Expo

Date: 11.15.2023

Attendance: 153

Cost: \$724

Our chapter teamed up with Fisher Scientific to host our annual expo. Top lab equipment vendors such as DWK Life Sciences, Mettler Toledo, 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.

Edwards Lifesciences Campus Tour

Date: 04.12.2024

Attendance: 14

Cost: \$0

Edwards Lifesciences invited us to tour their campus and their products at the headquarters in Irvine. Undergraduates and graduate students alike were able to get a hands on experience with heart valves and stents. This event allowed students to learn about Edwards as a company, get a hands on experience with medical devices, and meet our representative at Edwards. It also allowed graduate and undergraduate students to form connections between themselves.



Financial Literacy Workshop

Date: 05.07.2024

Attendance: TBD

Cost: \$0

Our Industry Chairs will present about personal finances. They will be covering topics such as W-2s, 401ks, Roth IRAs, and investing. This workshop contributes to our mission of creating well rounded, experienced individuals.

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 to address the drop in attendance. Proposed solutions include having a more flexible independent project that prompts students to design any medical device within the constraints of available supplies.

	Date	Attendance	Curriculum
Module 1	10.25.2023	35	Basic Circuitry
Module 2	11.08.2023	28	Coding/Arduino
Module 3	11.29.2023	28	Arduino Analog
Module 4	01.17.2024	23	Processing
Module 5	01.24.2024	21	Advanced Circuitry
Module 6	02.14.2024	15	PCB Design
Module 7	02.28.2024	13	CAD
Independent Project - Design of a Pulse Oximeter			

Total Cost: \$600

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. We have successfully doubled the size of our Cell Team, allowing for more members to take advantage of this program.

	Date	Attendance	Curriculum
Module 0	10.23.2023	24	Lab Safety
Module 1	10.30.2023	24	Serial Dilution & Materials
Module 2	11.06.2023	24	Bacterial Culture
Module 3	11.13.2024	24	Plasmid DNA Extraction
Module 4	11.27.2023	24	Mammalian Cell Culture & Brightfield Microscopy
Module 5	01.08.2024	24	PCR & SnapGene Tutorial
Module 6	01.15.2024	24	Hydrogel Encapsulation
Module 7	01.22.2024	24	Western Blot
Module 8	01.29.2024	24	Immunostaining & ImageJ
Independent Research Projects			

Total Cost: \$1850.00

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: 11.02.2023 **Attendance:** 26

During this workshop, attendees were instructed on the basics of Computer Aided Design (CAD) using Onshape. The lesson was centered around making a mold for candle making to keep students engaged in a hands on project.

AIChE x BMES General Circuitry Workshop

Date: 11.16.2023 **Attendance:** 20

During this workshop, attendees were instructed on the basics of circuitry and Arduino and practiced by building circuits on a breadboard. We partnered with the American Institute of Chemical Engineers to make a joint workshop series, and they did a lesson and hands-on activity on soldering.



AIChE x BMES PCB Workshop

Date: 11.30.2023 **Attendance:** 23

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.

Intermediate Circuitry Workshop

Date: 02.27.2024

Attendance: 12

Our Workshop Officers taught students basic circuitry exercises with a wide range of activities. Attendees used potentiometers, photoresistors, LEDs, buttons, resistors, and more. These workshops teach students important technical skills they can apply in industry. Some of them got their first exposure to coding and understanding electrical principles such as voltage, current, and resistance at the workshop.



Introduction to Python and Machine Learning

Date: 03.25.2024

Attendance: 5

Introduction to Python and coding where we teach them about functions, loops, and useful libraries. For the people who were more advanced, we taught them about the the fundamentals of machine learning.

Advanced CAD: Hip Replacement and FEA

Date: 04.25.2024

Attendance: 5

First workshop of the quarter, where we go over advanced CAD topics in Onshape. Participants learned about tolerances, loft, bezier splines, reference planes, and assemblies. Participants designed a pill box and an orthopedic implant.

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: 10.09.2023 and 10.10.2023 **Attendance:** 130 **Cost:** \$0

The Technical Projects Vice President and project managers present opportunities for technical experience in BMES, including our 4 year-long project teams, workshops, and our annual hackathon. We cover what each project entails as well as how to apply. Attendees were able to ask the project team managers any questions, and the managers were able to recruit for their specific projects. Hosting this event allowed for broader impact of our technical projects. These projects provide those interested in biomedical innovation with imperative technical experience.

Technical Projects Social: Lego Night

Date: 03.08.2024 **Attendance:** 10 **Cost:** \$66.59

Lego Night was our first all-technical-project social of the year and served for technical project members on all teams to get to know each other better! Students competed in 5 timed categories to make Lego creations according to assorted prompts, and enjoyed cookies together.

BioHack

Date: 05.17.2024 - 05.20.2024 **Attendance:** TBD **Cost:** TBD

The UCLA BMES BioHack is an annual hackathon that gives students the opportunity to prototype innovative solutions to biomedically-focused problems. This year, our prompts will be based on the Medtronic/BMES Student Design Competition. This choice was made after a team from our organization was a finalist in the 2023 competition, and we believe the experience to participate and present at the BMES Annual Meeting is a fruitful endeavor. Beyond this opportunity, we hope BioHack encourages our students to learn new technical, team-working, and presentation skills.

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 newest team, Research Team, draws on established fundamental wet lab skills to conduct research addressing an unmet medical need.

Design Team 1: VertiFlex

VertiFlex is a soft robotic orthosis designed to address the increasing prevalence of lower back pain globally, due to factors such as aging and poor posture. By combining advanced hardware components like IMUs and flex sensors with soft robotics, it provides immediate feedback and correction of posture deviations. A user-friendly software interface offers personalized rehabilitation and real-time data analysis for effective treatment. This device aims to revolutionize lumbar-focused orthotic devices by offering enhanced support and comfort while promoting conscious awareness of good posture.

	Date	Attendance
Weekly Meetings	Once 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: \$975.14

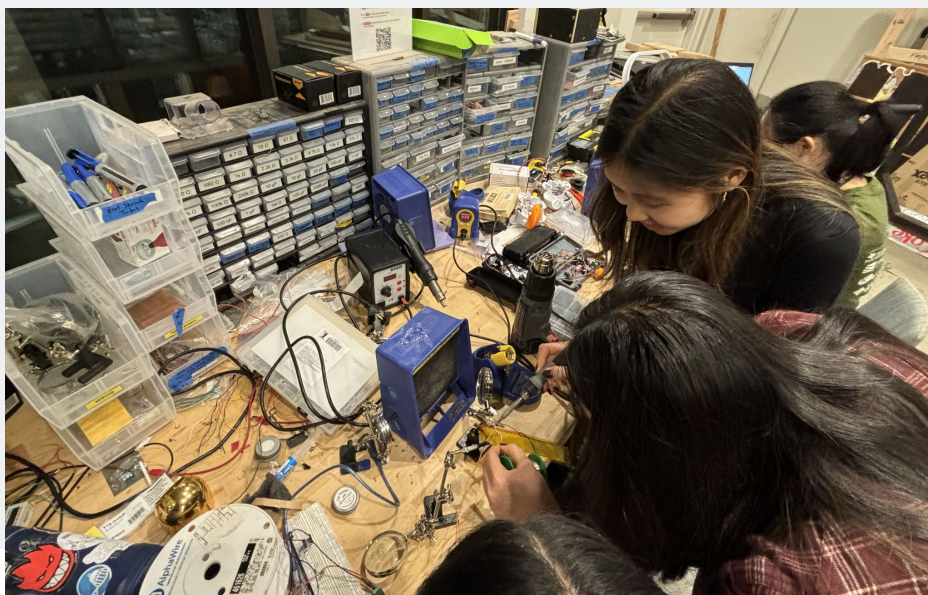
Design Team 2: Custom Cell Incubator

Our custom cell incubator aims to expand student access to advanced research tools. As a student-led and student-built project leveraging affordable components and open-source materials, we demonstrate the capability of students to create their own tools to further scientific research. Our incubator aims to mimic the conditions typically used for cell culture, including human body temperature, 5% carbon dioxide concentration, and high humidity, while ensuring sterility. This project has the potential to amplify students' scientific discovery in understanding disease mechanisms, drug development, and regenerative medicine, particularly in under-resourced regions, by empowering them to take agency over the scientific tools available to them.

	Date	Attendance
Weekly Meetings	Once per Week	8-10

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

Total Cost: \$566

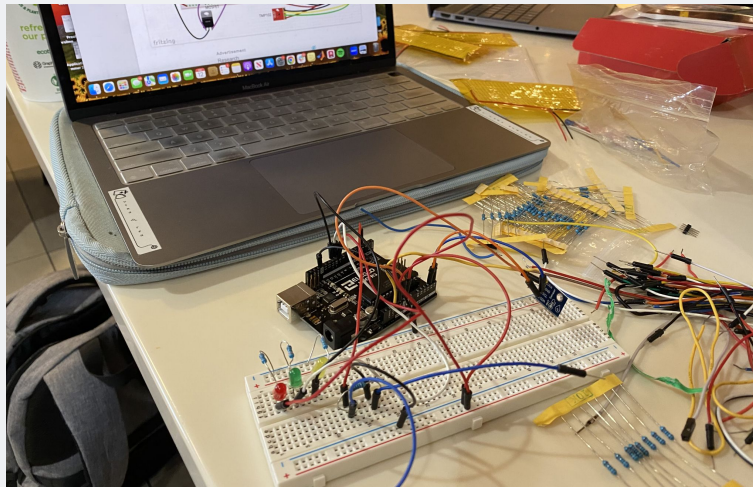


Design Team 3: Ambulatory EEG

Our EEG system aims to help individuals with impaired motor function utilize neural signaling to control machinery that allows them to live normal and fulfilling lives. By leveraging high speed data conversion and accurate classification, we hope to provide a seamless user experience for those affected. This project allows users to better understand neural patterns relating to their actions, and predictors to potential epileptic seizure events.

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

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



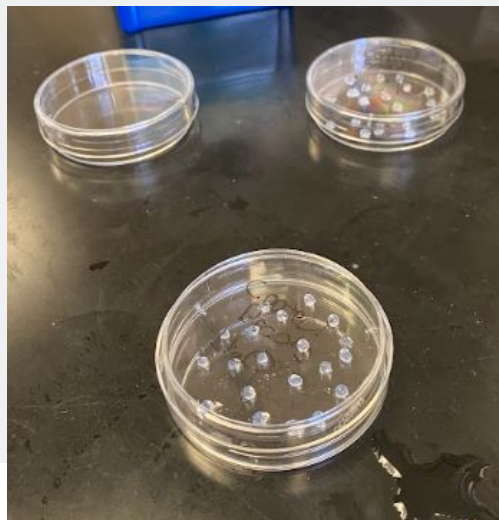
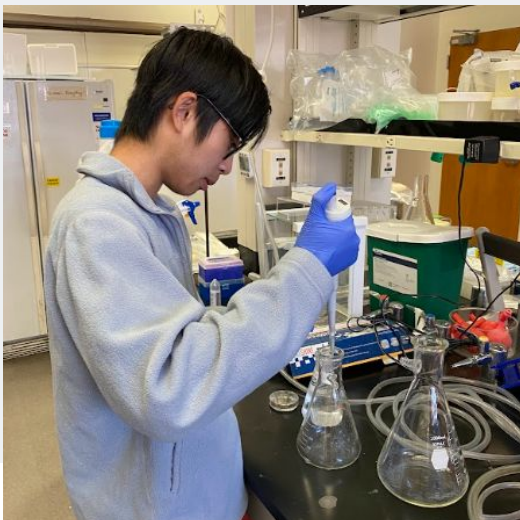
Total Cost: \$510

Research Team

Our multi-layered hydrogel uniquely combines techniques for synthesizing hydrogels for oral delivery of insulin. This oral insulin delivery system will transform type 1 diabetes management, particularly for those with mobile impairments, the elderly, and children on the spectrum, by providing a more effective, less invasive, and user-friendly treatment option. Although existing studies have shown the efficacy of oral insulin drugs in mouse models, the proven half-lives would not be as effective in humans. Our multi-layered hydrogels containing insulin-loaded nanoliposomes extends the drug's half-life, and allows for a more targeted and sustained insulin release.

Weekly Meetings **Date**
Once per Week **Attendance**
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: \$1500

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 2023, we had 9 of our members attend the meeting in Seattle. Some of our members were finalists for the Medtronic/BMES Student Design Competition, others participated in the poster 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 talking to graduate school representatives. Executive Board members met with leadership from other chapters to discuss future collaborations.

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 2023 Outstanding Mentoring Program Award. We hope we have continued to display our chapter's excellence in this year's CDR.



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

Goals for Attending Future Meetings

For the upcoming 2024 BMES Annual Meeting, we have the following goals:

- Encourage more submissions for the poster sessions and the Medtronic Design Competition. We will do this by advertising when abstract submissions are live and through our BioHack prompts (as discussed in the Industry and Professional Development Activities Section)
- Bring all of our Executive Board members to the Annual Meeting. In 2023, 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 UCLA BMES Executive Board for the 2023-24 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 UCLA BMES 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 2023-24 School Year

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

Promote Equity, Diversity, and Inclusion

This year, we fostered an environment in which students feel free to express themselves and celebrate their diversity. We established an EDI committee, which increased our number of educational events. We worked closely with the Associate Dean of Equity, Diversity, and Inclusion to improve the caliber of our events with increased funding. We are going to continue this momentum into the 2024-25 year with the appointment of a new EDI chair.

Increase Opportunities for Hands-On Technical Work

Through the expansion of our Cell Team and the implementation of our new Research Team, we exceeded our expectations for this goal. Our wet lab opportunities are far greater, and we have successfully found new sources to fund these projects. We are excited to further improve the latest addition to our technical projects and continue to innovate.

Strengthen Connections to Industry

Above all, our work with the Industry Advisory Board has allowed us to surpass this goal. The IAB Mentorship program continues to assist students in their career aspirations. For the first time post-pandemic, we were able to travel to the Edwards Lifesciences Campus and interact with leaders there. Our career fair was far more expansive due to collaborations with the American Institute of Chemical Engineers at UCLA. In addition, our Science Vendor Expo was an excellent collaboration with Thermo Fisher Scientific, and it was the largest one yet.

Outline of Chapter Expectations for the 2024-25 Year

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

- 1. Increase member awareness about various industries within bioengineering and their respective social impacts.** We plan to work further with the Industry Advisory Board to provide us with resources to get connected with industry professionals who can attend in-person coffee chat style events where students can learn about specific biotech industries
- 2. Expand engagement of all of the mentorship programs and foster closer intra-club relationships.** We plan to increase mentorship program retention by providing quarterly check ins, holding mentor-mentee specific events, and combining the Alumni and Industry Mentorship Programs together. We will host more mingling events with engaging activities and incentivize different committees and teams within BMES to hold their own socials to get to know each other better.
- 3. Promote corporate sponsorship for K-12 outreach and technical projects.** We plan to update and advertise our sponsorship packet with the progress made over the past year, especially highlighting the Technical Projects Symposium, participation in design innovation competitions, and community outreach activities. Additionally, we will leverage our alumni network to build relationships with industry partners and invite them to get involved with these flagship events.

- 4. Continue to increase industry/faculty involvement in technical projects, BioHack, and Technical Projects Symposium.** We will reach out to industry professionals to sponsor our technical projects, to provide resources and expertise for BioHack, and to judge our technical projects at Technical Projects Symposium. Additionally, we plan to engage with faculty members by seeking their advice and mentorship for our projects throughout the year. We hope that facilitating interactions between BMES Technical Project members and industry professionals or faculty will give our students exposure to additional perspectives in bioengineering that can directly apply to their project strategies.

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

Sincerely,

Audrey Sogata | President

Natalie Tsubamoto | External Vice President

Lillian Gong | Internal Vice President

Viên Le | Technical Projects Vice President

BMES UCLA 
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