BPOP: the Bruin Pre-med Opportunity Project

PILOT QUARTER

College Scholars Capstone Project
Created by Brian J. Cheng

MY JOURNEY

As a College Scholar, I found my journey through exploration and experimentation, starting from two of my passions: music and teaching.

INTRODUCTION

The Road to Discovery

Years 1 & 2:
The Musical Jarvis

Being an enthusiast of music composition, I dreamed of a music notation software controlled entirely through voice commands. Having no programming experience, I set goals to learn programming languages through UCLA's CS classes that would aid me in the creation of such a tool. Unfortunately, this proved too ambitious, and I had to pursue other, more realistic and attainable, projects.

Year 3:
The USIE Effort

I then turned to teaching, one of my greatest passions. Inspired by the UCLA Science Education Minor and my mentors in science and medicine, I wanted to create a USIE research course to address a growing need for STEM research opportunities among undergraduates. My project was unfortunately rejected, but I didn't want to give up yet.

Year 4:
The Birth of BPOP

I dedicated my efforts to establishing a club during my final year at UCLA, with a similar mission of bringing opportunities through mentorship to pre-medicine undergraduates. My dream, albeit in its infancy, had finally begun to come true.

MY JOURNEY

WHY BPOP?

I created BPOP to satisfy a need for mentorship amongst pre-medicine undergraduates at UCLA. What began as a simple dream soon became much, much more.

THE MISSION

TO SATISFY A NEED.

When I first joined UCLA as a pre-medicine student, the majority of my peers and I struggled to find research, clinical, and volunteer opportunities. Often, opportunities were locked behind highly selective and complex application processes that seemed insurmountable without prior experience and guidance.

As inexperienced underclassmen, my peers and I felt lost without a consistent, supportive mentorship system that would help us approach and reach our goals.

THE MISSION

TO GIVE BACK TO OTHERS.

As a fourth-year undergraduate who had a hard time finding my own support structure at UCLA, I wanted to use my experiences to give back to those who were in my shoes when I first began my journey.

I wanted to create a mentorship program, open to ALL, that would guide pre-medicine students at every step of their journeys—one that my peers and I wished we had back then.

I wanted to break down the mystery and intimidation that surrounded opportunities and goals, and empower others by helping them feel as if they were not alone. We're all in this together.

THE MISSION

BPOP'S INAUGURAL PILOT QUARTER

It took almost one year to set up BPOP's objectives and logistics. Before the school year ended, we had one successful Pilot Quarter (Spring 2023) that showed great potential for BPOP to become something much greater.

SPRING 2023 DEBUT

LEARNING BY EXAMPLE

We had weekly group meetings on Mondays, where we introduced a topic of interest (i.e. Finding Research) and presented our members with resources and advice they would need.

We gave interactive demonstrations on each of the topics we presented, which were built on the application materials I had written myself during my time at UCLA.

The next few slides are some of the example resources I created and used during our meetings:

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Name + Contact

School + Stats

Classes you've taken

Your name here!

Address: home address, school address, any applicable address you'd be comfortable including!
bpopucla@gmail.com

EDUCATION

University of California, Los Angeles **Aug 2020-expected Jun 2024**

Bachelor of Sciences, Human Biology and Society Major

- GPA: 3.70/4.0 ***Include any honors or scholar societies (Regents, Alumni Scholars, etc)***
- Alpha Lambda Delta and Phi Eta Sigma Honors Societies

RELEVANT UCLA COURSEWORK (examples below)

Spring 2021 Coursework: ***Include STEM courses you have taken or WILL take soon***

- Chem 153A - Biochemistry: Introduction to Structure, Enzymes, Metabolism
- Chem 14CL - General and Organic Chemistry Lab II
- Physics 5C - Physics for Life Science Majors III: Electricity, Magnetism, Modern Physics

Life Sciences

- LS 7A, 7B, 7C - Biology and Life Sciences (Cell and Human Biology, Genetics, Evolution)
- LS 23L - Introduction to Laboratory & Scientific Methodology

Chemistry

- Chem 14A & 14B - General Chemistry for Life Scientists I and II
- Chem 14C & 14D - Structure of Organic Molecules, Organic Reactions and Pharmaceuticals
- Chem 14BL - General and Organic Chemistry Lab I

Physics

- Physics 5A & 5B - Physics for Life Science Majors I and II

Mathematics

- LS 30A & B - Mathematics for Life Scientists I & II

Cluster

- M71A - Biotechnology and Society

Relevant experiences:
Don't worry if you don't have prior research experience! Relevant experiences to include can be classes you took, volunteer work, clinical work, club stuff, and more.

Include anything that shows any background science knowledge or interest in science, and/or experience working with others. Any sort of scientific writing experience from classes, clubs, etc would also be helpful!

Here are some **examples** of things you can include.

EXPERIENCES (examples below)

***Undergraduate Research Assistant,* The Lundquist Institute (this is a research class@UCLA)** **Oct 2020-Dec 2020**

- Assisted Dr. Nagendra Mishra, UCLA Associate Professor of Medicine, on research studies through the MED 99 research seminar course. Topic of interest: Daptomycin antibiotic resistance exhibited by *S. aureus* bacteria.
- Analyzed research studies and methods, and learned about research and publication processes.

***Bridge To Biotechnology Workshop*, Moorpark College (1-day workshops like these work well too!)** **June 2018**

- Engaged in a wide variety of wet lab experiments, including DNA PCR replication, nucleotide modifications in cheek cells, and RNA influence on microworms, among other activities.
- Instructed on proper lab protocol and procedure by professors and graduate students.

***Stem Cell Training Workshop*, Pasadena City College** **May 2018**

- Observed and participated in the preparation and analysis of pluripotent stem cells in a wet lab setting.

***Medical Examiner (CPT1)*, APPSLIVE Paramedical Services (any clinical things work well!)** **Feb 2021-present**

- Works per diem as a mobile medical phlebotomist/examiner. Conducts medical exams on a 1-on-1 basis for life insurance applicants. Records personal medical histories, and collects physical measurements, blood venipuncture samples, and other specimens. NHA and California CPT1 certified and licensed.

***Staff Intern,* Bruin Medical Review (any science writing experience like this works!)** **Dec 2020-present**

- Conducts online research and interviews with credible sources about prevalent topics in medicine, public health, and the humanities. Publishes research articles on bruinmedicalreview.com as an online resource.

***Medical Scribe*, UCLA Health Woodland Hills** **Nov 2020-present**

- Works per diem as a medical scribe. Assists UCLA Health physicians by completing electronic patient records, writing/ordering medication prescriptions, and other record-keeping duties.
- Shadows physicians in patient contact and treatment in a primary care facility through 1-on-1 interactions.

***Tutor*, UCLA School on Wheels (Volunteer work is great to include!)** **Sep 2020-present**

- Tutors students K-12 in various school subjects including math, science, language arts, and history.
- Ensures a safe and comfortable learning environment for each student.

OPTIONAL:
Extra Info you can include:

Any awards you may have.

Any specific skills (i.e. coding, graphic design, Microsoft Office, etc.)

Any references you may want to include.

AWARDS AND HONORS

- 2020 - present: Alpha Lambda Delta and Phi Eta Sigma Honors Societies
- 2020 - present: UCLA Regents Scholar Society
- 2020 - present: UCLA Honors Scholars Program
- 2018: *Outstanding Achievement in Life Science Award*, XX High School
- 2018: *Junior Honor Guard*, XX High School

SPECIALIZED SKILLS

Languages: Chinese (Mandarin, spoken) and written Spanish (basic).
Experience With: CareConnect medical provider interface, Epic Hyperspace electronic patient record system, Citrix Workspace, Microsoft Office Suite, Google G Suite, SageMath programming software, Zoom teleconferencing.
Personality Traits: Very detail-oriented, adaptable, and optimistic work ethic.

REFERENCES (try to provide name, role, and email and/or phone)

- **Dr. Rob M. Kassan, MD**
  Associate Clinical Professor, UCLA David Geffen School of Medicine
  Primary Care Physician, UCLA Health Woodland Hills
  example@example.com
- **Dr. Michelle Rensel, PhD**
  Adjunct Assistant Professor, UCLA Institute for Society and Genetics
  (XXX) XXX-XXXX
  example@ucla.edu
- **Mr. Fung Ho**
  Music Director, Olympia Youth Orchestra
  (XXX) XXX-XXXX
  example@example.com

1) Introduce yourself!

2) Tell 'em what you've done! Mention any relevant classes, volunteer/club work, etc.

3) What do you like about their research?

4) Ending the email! **Make sure to attach your CV/resume!**

Dear Dr. XXX,

My name is [YOUR NAME HERE], and I'm currently a second-year undergraduate at UCLA interested in getting involved with research.

Although I have not yet conducted wet lab research in-person, I spent one quarter in the MED 99 research seminar course led by Dr. Nagendra Mishra, UCLA Associate Professor of Medicine. During that time, I learned techniques involving the research and publication process as well as laboratory procedures. Additionally, I became familiar with benchwork techniques such as bacterial isolation and DNA sequencing through the Chem 14BL and LS 23L laboratory classes, and took an analytical math course which allowed me to grasp the fundamentals of coding and data analysis. I also have experience with independent record keeping as a medical scribe for UCLA Health.

Having found these experiences to be rewarding and inspiring, I would like to continue this by participating in your research lab. **Having found these experiences to be rewarding and inspiring, I would like to continue this by participating in your research lab. I'm intrigued by the idea of studying aspects of organ transplants to prevent IRI and promote success of transplants, which drew me to your research. The possibility of decreasing injury to transplanted organs in relation to internal homeostasis fascinates me, and I hope to learn how organ transplant treatments can be made safer and even more viable in the future. <-- The bolded section is specific to each lab! Write 1-2 sentences on what catches your interest about their research.**

I would like to add that I'm open to doing remote research due to the pandemic and in-person operations during the school year and the summer. I've included my CV as well as my contact information with this email, and would be more than happy to provide a copy of my academic record. Looking forward to hearing from you soon!

Sincerely,
[YOUR NAME]

What is a clinical opportunity?

Clinical: any opportunity that encourages patient contact/care

- Things to look for:
  - ***Ways to directly interact with patients & shadow doctors***

Examples of accessible **Clinical Ops (usually paid)** for undergrads:

- **Medical Scribe:** charting and inputting orders for doctors, physician shadowing **(cert optional)**
- **Physician shadowing:** observer of the clinic. Follow a doctor as they see patients during the day.
- **Medical Assistant:** rooming patients, EKGs, taking vitals, lab draws (responsibilities may vary).
- **Phlebotomy (CPT1):** blood draws & other clinical sample collection (responsibilities may vary).
- **CNA (Certified Nursing Assistant):** work in long-term care facilities to care for patients. Moving/feeding/caring for patients and other care duties.
- **EMT (Emergency Medical Technician):** First responder unit. First health providers on-scene when 911 is called.
- **Surgical tech:** assist operating room providers during a surgery.
- **X-ray tech:** great for radiology! Assist radiologists in their job duties.

NOTE: GREEN = formal certification/license required in 99% of cases.
Obtain certs @ adult schools/community colleges!

What is a clinical opportunity?

Clinical: any opportunity that encourages patient contact/care

- Things to look for:
  - ***Ways to directly interact with patients & shadow doctors***

Examples of accessible **Clinical Ops (Usually UNpaid)** for undergrads:

- **UCLA Clubs/Volunteering**
  - **Examples:** EMRA, FISH, SCOPE, MESH, Happy Feet Clinic, Mobile Clinic, Care Extenders, MyUCLAHealth Ambassadors, Stroke Team/Stroke Force, student health coalitions, PPE supply orgs, student health advocacy orgs, sexual health orgs, and more!
  - **UCLA Pre-med Community Link HERE: https://linktr.ee/uclapremedcommunity**
- External Hospital/Clinic Volunteering
  - Cedars-Sinai (just down the street from here!), other UCLA Ronald Reagan volunteering
  - Free Clinic volunteering, 24/7 mental health hotlines
  - Volunteer Medical Assistant (front or back office)
- Clinical Research!
  - Involves talking to patients, often enrolling them in clinical studies **(Can be paid or unpaid)**

Where do I find clinical opportunities?

- **Job Recruitment Sites (ZipRecruiter, Indeed, LinkedIn)**
- **Ask around!**
  - Ask professors for recommendations on where you can look for opportunities
  - Contact local clinics/hospitals to ask for opportunities
- **Social media!**
  - Join UCLA internship groups and class groups on Facebook!
- **Take a class!**
  - Interested in getting a certification or license?
  - Take a certification class! Chances are the teachers there will have direct connections to places that are hiring their students.
- **UCLA Organization Search on myUCLA**

What is a non-clinical opportunity?

Non-clinical: any service role NOT in a medical setting.

Things to look for:

- ***Ways to directly interact with other people!***

Examples of accessible **NON-Clinical ops** for undergrads:

- **Teaching/tutoring/working with kids**
  - UCLA Science Education minor & UCLA LA (Learning Assistant) program
  - School on Wheels, Reading to Kids, **CityLab**, UniCamp, etc.
- **Serving those in need**
  - Homeless shelter volunteering
  - Soup kitchen volunteering
- **Working in restaurants/retail/customer service**
  - Builds up experience working with others, very solid experiences
- **Writing**
  - Journal club organizations (BMR, Morning Sign Out, Bruin Newspaper, etc)

LEARNING BY DOING

Following these resources, I designed activities that would 1) help members make friends with each other, and 2) help them put into practice the skills they just learned.

By doing these activities together as a group during our meetings, I wanted to “start the ball rolling” for our members, and give them experience and personalized feedback that would help them grow.

We did things step by step at a manageable pace, so our tasks would seem as doable as possible!

The next few slides are some of the example activities I created and led during our meetings:

Activity: Peas in a Pod

- Find someone in the room to talk to!
- Talk about:
  - How was last week of school for you?
  - Any progress with writing research applications? Anything you'd like help on?
  - **Today's topic: Med School Apps**. How do you feel about the application process?
  - What's your favorite TV show/movie?

Where should I look for research?

Lots of options! Make sure to cast a wide net!

Including but not limited to:

1. Department websites
2. Undergraduate Research Portal
3. Googling
4. Word-of-mouth
5. **UCLA DGSOM Faculty Search**

This is a very efficient and versatile option that is pretty underused amongst UCLA undergrads. It allows you to sort researchers by topic of interest, and most conduct research closely related to medicine!

Link:
https://people.healthsciences.ucla.edu/institution/personnel-search/

Find your faculty!

- Find someone in the room to work with.
- Together, use any of the methods talked about today to find at least 8 professors per group to reach out to.
- Guiding questions:
  - **What topics interest you?** If you're new at this, no worries! Find one small thing that catches your interest and go from there!
    - Some examples: Cancer cells? Organ transplant? Understanding how the mind works? How drugs work in the body?
  - **What departments have people working with the topics you're interested in?**

Link:
https://people.healthsciences.ucla.edu/institution/personnel-search/

Writing our own outreach letters

Step 1: Write 1 sentence about who you are and why you're here!

- Include: name, year, major, and your interest in research

Step 2: Write 2 sentences about why their research captures your interest!

- Pick one of the profs you found earlier. Look up their topic and find something interesting about it!

Step 3 (the hard part): Write a bit about what you've done that is relevant to research!

- Things to consider: classes you've taken, volunteering positions, possible lab workshops, anything!

Step 4: Exchange letters with your group!

- Talk about what went well/not well! Point out things you liked about each other's work.

Done? Fill out our feedback form before you leave!

OUR FAMILY

Our pilot quarter member base was small due to starting later in the year, but I couldn't be more grateful for these dedicated members and their support and feedback this year.

We will continue to recruit next Fall to connect with more students, and will be having 1-on-1 mentorship meetings with our members this summer!

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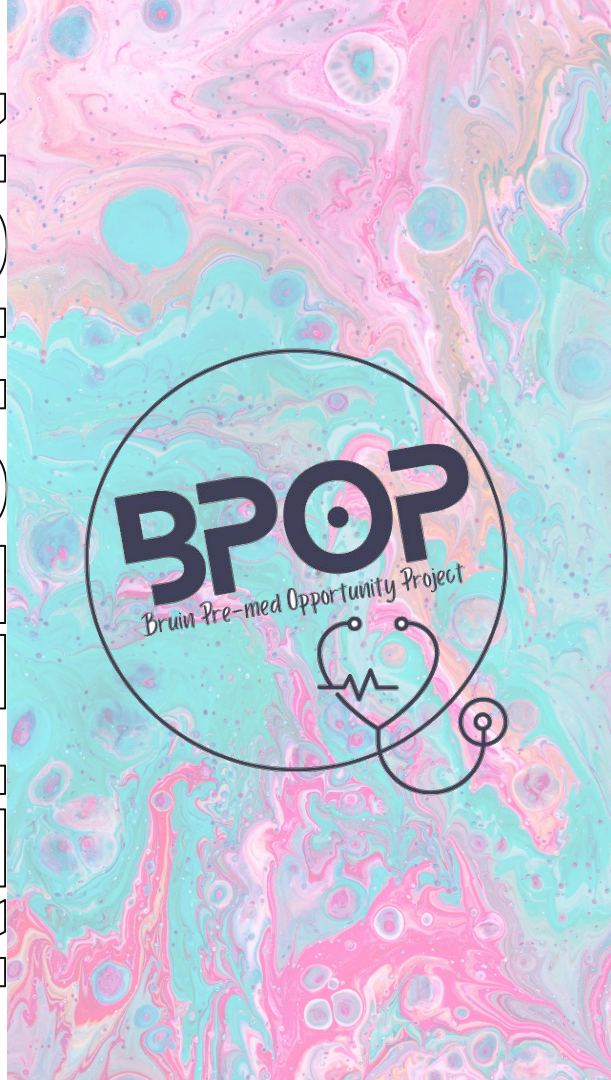
IN RETROSPECT

Although its mission has just begun, I couldn't be happier with how far BPOP has come this year.

REFLECTION



IN RETROSPECT

BPOP was a culmination of my experience and development as a College Scholar because it allowed me to give back to others using everything I had learned as a pre-med student at UCLA. Starting from my passion for teaching, it soon became an outlet through which I could mentor other students, supporting them as they achieve their goals. Getting to this point over all 4 years of my time here was no easy task for me; I'm beyond grateful that I can share what I learned with so many inspiring individuals. I look forward to continuing to support undergraduates during my gap year.

When I first joined UCLA, I knew what I wanted to achieve, but felt intimidated by the path that laid before me. The College Scholars program was one of the highlights of my first year here. It was so collaborative and friendly, and helped me gain courage in finding my own niche, whether it be in academics or with friends. It definitely formed the foundations with which I could build upon. Our quarterly counseling check-ins were also integral in forming my direction here at UCLA. My counselors, Nol, and most recently Angel, opened my eyes to a world of opportunities and possibilities that I could not have dreamed of if I had not been in this program. They provided me with so much encouragement in my darkest moments, and so much inspiration that motivated me to keep forging the path that I had created for myself. It is undeniable that the College Scholars program has helped me become who I am today.

REFLECTION

Thank you, College Scholars Program, for making my time at UCLA

SO MEMORABLE.