

Benjamin Adam **Catching**

GRADUATE STUDENT

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Education

University of California, San Francisco

PH.D CANDIDATE IN BIOPHYSICS, ANDINO LAB

San Francisco, California

September 2017 - Present

California State University, Chico

B.S. IN PHYSICS, MINOR IN MATHEMATICS

Chico, California

August 2011 - May 2016

Publications

Examining face-mask usage as an effective strategy to control COVID-19 spread.

Published on August 6th, 2021

[https://doi.org/10.1038/s41598-021-](https://doi.org/10.1038/s41598-021-94960-5)

SCIENTIFIC REPORTS

94960-5

- Co-first author. Designed, ran, and analyzed simulation data for pandemic conditions with difference levels of adherence to face-masks and social distancing.

Experimental and mathematical insights on the interactions between poliovirus and a defective interfering genome.

BioRxiv on January 11th, 2021

PLOS PATHOGENS, IN REVIEW

<https://doi.org/10.1101/2021.01.11.426198>

- Collected negative stain EM images of virus particles.

Mapping Attenuation Determinants in Enterovirus-D68.

Published August 8th, 2020

VIRUSES, VOLUME 12, ISSUE 8

<https://doi.org/10.3390/v12080867>

- Helped with data analysis and helped set up of simulation for virus mutants.

Robust Sequence Determinants of α -Synuclein Toxicity in Yeast Implicate Membrane Binding .

Published July 27th, 2020

ACS CHEMICAL BIOLOGY, VOLUME 15, ISSUE 8

<https://doi.org/10.1021/acscchembio.0c00339>

- Ran mutational and chemical perturbations against protein in question in Yeast two hybrids.

A Type IV-A CRISPR-Cas system in *Pseudomonas aeruginosa* mediates RNA-guided plasmid interference *in vivo*.

Published December 2019

THE CRISPR JOURNAL, VOLUME 2, ISSUE 6

<https://doi.org/10.1089/crispr.2019.0048>

- Developed bioinformatic pipeline to analysis putative CRISPR type IV systems while rotating in the lab of Dr. Bondy-Denomy of UCSF

Human Phageprints: A high-resolution exploration of oral phages reveals globally-distributed phage families with individual-specific and temporally-stable community compositions

Deposited in Jan. 2019

bioRxiv

<https://www.biorxiv.org/content/10.1101/516864v1>

- Collected, isolated, and prepared oral genomic samples from human subjects as a lab tech in the lab of Dr. Phillips of Caltech

Magnetic Viscous Drag for Friction Labs

Published Sep. 2016

THE PHYSICS TEACHER, VOL. 54

<https://aapt.scitation.org/doi/10.1119/1.4961172>

- Research with Dr. Gaffney of CSU Chico on magnet sliding down non-ferric conducting slab as a friction lab

Performance of Metal-Coated Mirrors with Different Protective Dielectric Layers, Part 1: Experiment

Presented Apr. 2014

CSU CHICO COLLEGE OF NATURAL SCIENCES POSTER SESSION

- Comparison of coating and metal's effect on polarization from rotation of azimuthal and elevation mirrors with Dr. Petrova-Mayor of CSU Chico

Addressing Students' Difficulties in Charging by Induction: Creation of Experimental Videos

Presented Aug. 2013

AAPT SUMMER MEETING POSTER SESSION

- Investigated effects of video demonstration as a learning device for teaching electromagnetic induction with Dr. Zou of CSU Chico

Experience

California Institute of Technology

Pasadena, California

LAB TECHNICIAN IN THE PHILLIPS GROUP

Aug. 2016 - Aug. 2017

- Assist in oral sample collection, preparation, and analysis pertaining to a 100 day experiment
- Head Teaching Assistant for the Spring 2017 class: Bi 1X, Great Ideas of Biology

Marine Biological Laboratory

Woods Hole, Massachusetts

PHYSICAL BIOLOGY OF THE CELL COURSE ASSISTANT

Sep. 2016 - October 2016

- Set up course, ensured all materials and apparatus arrived or were procured on time
- Coordinated course events and transitions
- Student in course, worked with Greg Huber of KITP (now Chan Zuckerberg Biohub) on membrane physics of archaeal virus capsids

Marine Biological Laboratory

Woods Hole, Massachusetts

PHYSIOLOGY COURSE ASSISTANT

Summers of 2014, 2015, and 2016

- Organized and optimized lab space and equipment
- Took part of course classes and attended all course lectures

California State University, Chico, Physics Department

Chico, California

TEACHER'S ASSISTANT

Aug. 2013 - May 2016

- Assisted Dr. Ayars, Dr. Gaffney, Dr. Arpin, Dr. Anderson
- Graded papers, assisted in lab, proctored tests

California State University, Chico, Physics Department

Chico, California

STOCKROOM ASSISTANT

Aug. 2012 - Dec. 2013

- Set up lower-division labs under Mrs. Mary Waldorf

Extracurricular Activity

Graduate and Professional Student Association

San Francisco, California

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

- External Vice President September 2018 - May 2020
 - Graduate Division Representative
 - Member of the University of California Graduate and Professional Council
 - Member of University of California President Student Advisory Committee
- President May 2020 - September 2021
 - President of the UCSF student body
 - Member of the University of California Council of Presidents, led items at quarterly meeting with UC President
 - Student representative of UCSF Alumni Association
 - Member of Student Service Fee Advisory Committee
 - Student representative on Suicide Prevention Advisory Group
 - Collaborated with UCSF Office of Community and Government Relations for student advocacy
 - Served on Vice Provost for Academic Affairs Selection Committee

Associated Students of the Graduate Division

San Francisco

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

- Student Affairs Officer September 2018 - May 2019
 - Determine the state of graduate student affairs through attendance of outside student meetings

Science and Health Education Partnership

San Francisco

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

- Classroom Partnership Volunteer March to April 2018
 - Created and implemented a four day physics lesson plan for two classrooms at Balboa High School, San Francisco, Ca

Society of Physics Students

Chico, California

CALIFORNIA STATE UNIVERSITY, CHICO CHAPTER

Member from 2011 to 2016

- President Aug. 2015 - May 2016
 - Chapter won Marsh White Outreach Award
 - Oversaw successful 28th Annual Pumpkin Drop
 - Catalyzed First CSU Chico, College of Natural Sciences, Science Day
 - Oversaw Second Annual SPS Pi Day
 - Coordinated tutoring schedule
 - Organized student participation in selection of new department physics professors
- Executive Vice President Aug. 2013 - May 2014
 - Assisted President
 - Helped with Pumpkin Drop
- Vice President of Communications Aug. 2012 - May 2013
 - Maintained website, took meeting notes

ΑΣΦ Fraternity

Chico, California

ΕΨ CHAPTER

Initiated Nov. 2012

- Housing Director Jan. 2014 - May 2014
 - Liaison between house occupants and landlord
 - Responsible for maintenance and bill payment
- Philanthropy Director Jan. 2013 - May 2013
 - Attended Ralph F. Burns Leadership Institute
 - Planned and executed "Donuts for Dogs" weeklong fundraiser for Canine Companions for Independence

California State University, Chico Interfraternity Council

Chico, California

NATIONAL INTERFRATERNITY CONFERENCE MEMBER

Board Member from Aug. 2014 to May

2015

- President Aug. 2014 - May 2015
 - Presided as chair of executive council
 - Facilitated weekly meetings between Executive Council and Chapter Presidents Council
 - Guided reformation of Bylaws and Constitution
 - Became nationally recognized through NIC
 - Oversaw first IFC recruitment week
 - Participated in Chico NIC leadership retreat
 - Dealt with Theta Chi Fraternity disaffiliating from IFC

Honors & Awards

2016 **Recipient**, Outstanding Student Leader Award

*CSU Chico, College
of Natural Sciences*

2015 **Recipient**, Archon Award

*CSU Chico, Greek
Life Office*