



Department of Chemistry

2023

Department of Chemistry News

Welcome to the 2023 Chemistry Department newsletter. We are excited to update you on recent Department of Chemistry news! As part of the Cal Poly Humboldt renovation funding, we have started planning for major teaching lab upgrades. Along with these significant infrastructure upgrades the Department of Chemistry has received modernization funding for instrumentation and equipment which will include new liquid chromatography mass spectrometer (LC-MS) and gas chromatography mass spectrometers (GC-MS), infra-red spectrometers (IR), and nuclear magnetic resonance (NMR) instruments. We are excited to announce our NEW BS in Biochemistry degree was approved by the Chancellor's office and will launch in Fall 2024. Read more on pg 2



Dr. Chris Harmon and Jose Salas exploring molecular interactions Using VR Protein Databank models in ChimeraX software.



Moving Forward, Moving Ahead!

Alumni!

Please send us your updates! We love to hear what former students are up to and help our current students make connections. Submit an Alumni Profile

Biochemistry Degree Approved

In March 2023, our new Bachelor of Science Biochemistry degree elevation was approved by the Chancellor's office. The new degree program will launch in Fall of 2024 and will compliment the BS and BA Chemistry degrees currently offered at Cal Poly Humboldt, while focusing on the knowledge and skills required in the biotech industry. Watch for new courses that will be offered along with the new major including Introductory Medicinal Chemistry and Advanced Biochemistry. We look forward to new students coming into this degree!

Retirement Congratulations!

At the conclusion of the 2022/2023 Academic year, stockroom manager Michelle Dostal announced her retirement. Michelle completed a bachelor's degree in zoology at Humboldt State. Michelle worked at North Coast labs before returning to Humboldt in EH&S. From there Michelle transitioned to the chemistry stockroom and eventually took the lead. While Michelle will be missed in the department, she will no doubt remain busy with her many hobbies. We look forward to hearing about trail rides, new cats, and puppies as Michelle settles into her next chapter.



Place Based Learning Community

*Fostering Cohesion
Early in the Science Career!*

First-year students enter into the program as a cohort with block scheduled courses and grouped housing. Come join us!

Congratulations! *Celebrate Success*

2023 Graduates

Jade Boyd*

Keith Druen

Luke Jernigan*

Tyler Johnson

Kirian Julliot-Spencer

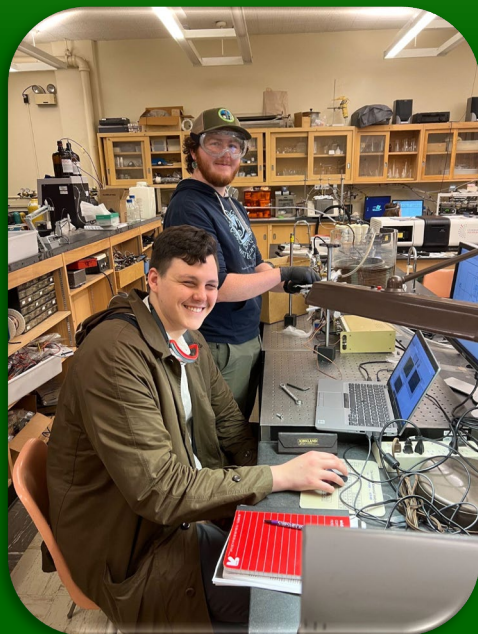
Laura Martin (Fall 22)

Jack McLaughlin*

Gage Rios

Mary Verley

*Graduating with Honors



**2023 Accepted to Graduate School
Congratulations to:**

Jack McLaughlin- Oregon State University

Jade Boyd- Oregon State University

Gage Rios- Oregon State University

Awards *Students Spring to New Heights*

David Morales

Dr. Richard Paselk
Biochemistry and
Biophysics Scholarship



Matias Chapman

Charles and Judith
Ferguson Dvorak
Endowment
Scholarship



Lillian Caballero

Westmoreland Scholar
in Honor of Jack
Russell



Chase Harwell

Lorensen Chemistry
Scholarship



The Chemistry
Department Scholarships
and Awards Ceremony
2023

Awesome Scholars!

We want to congratulate all the recipients of department awards this year! We are proud of their academic dedication.

Please consider sponsoring one of our outstanding student awards each year. A little goes a long way in student finances.

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Give now

<https://giving.humboldt.edu/our-funds?combine=chemistry>



Thank you to our amazing stockroom staff Brandon, Michelle and Cristina along with student assistants Matias, Valeria and Gage for keeping all of the laboratories running smoothly!

Congratulations Academic Award Winners! *Celebrate Success*

2022-2023

Humboldt Freshmen General
Chemistry Award Dae Han Youn

ACS Undergraduate Award in
Analytical Chemistry Tyler Johnson

Humboldt
Undergraduate Award in
Organic Chemistry Quigley Espinola

ACS Organic Award Jack McLaughlin

Humboldt
Undergraduate Award in
Physical Chemistry Jill Mochizuki

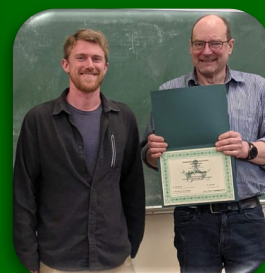
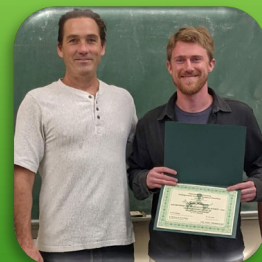
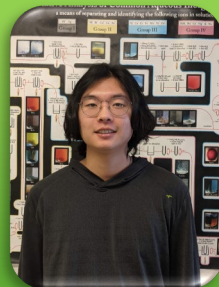
Humboldt
Undergraduate Award in
Biochemistry Amanda Ratcliff

Humboldt
Undergraduate Award in
Inorganic Chemistry Kirian Juillot-Spencer

ACS Undergraduate Award in
Environmental Chemistry Elizabeth Winn

Humboldt Outstanding
Graduating Senior in
Chemistry Jack McLaughlin

Humboldt Outstanding
Graduating Senior in
Biochemistry Tyler Johnson



The Free Radicals - Chemistry Club Spotlight *Students first*

We continue to be proud of The Free Radicals Chemistry Club. They are an active award-winning student chapter of the American Chemical Society.



Run For Officer Positions!

Get out of that low energy state and motivate



2022/2023 Officers

Pres: Jack McLaughlin

VP: Ansel Duncan

Tres: David Morales

Historian: Ansel Duncan

Secretary: Gavan Jones

Green Chem: Jack McLaughlin

Social Director & Outreach: Shay Konradsdottir

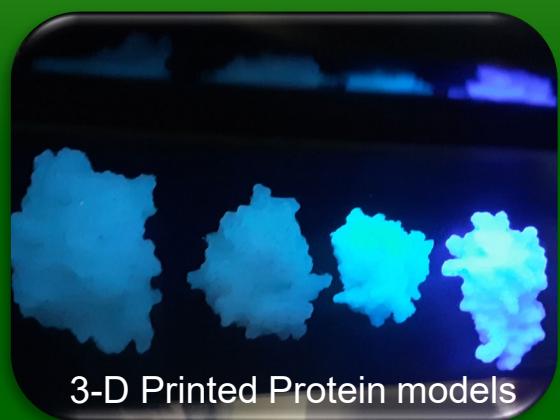


Faculty and Student Research Highlights

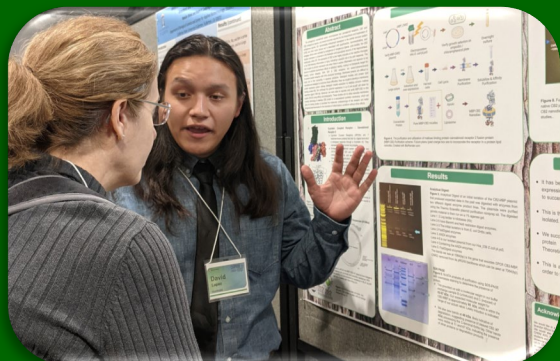
Hands on Experience!

Students on the Move!

Many students presented their research with Humboldt Chemistry Department Professors at National and Regional Meetings. These included The McNair Scholar Symposium, CSUPERB Biotechnology Symposium and American Society for Biochemistry and Molecular Biology



3-D Printed Protein models



Presentations

Chapman, M. Smith, J. Computational Studies on Organic Photovoltaic Compounds. UCLA McNair Scholars Symposium, July 30-Aug 3 2023.

Till, C. CSUN's Geological Sciences Colloquium

Burton-Tauzer, Ryley A., Harmon, Chris (Faculty co-advisor). Food waste storage gaseous emissions detection and quantification using infrared spectroscopy. (2023). *Cal Poly Humboldt theses and projects*. 679
<https://digitalcommons.humboldt.edu/etd/679>

Balfe, E., Amrani, L., and J. A. Cappuccio, Anabaena Sensory Rhodopsin Membrane Protein and ApoA1 Detection in a Nanodisc *via* Western Blot Analysis., Cal Poly Humboldt Ideafest, May 2022, Arcata, CA
CSUPERB Biotechnology, January 2023.
ASBMB, March 2023, Seattle WA.

Jenny Cappuccio, Brigitte Blackman, Karen Kiemnec-Tyburczy, Kimberly White, Heidi Rutschow, and Frank Cappuccio
Threading Biotechnology through the Curriculum Enhances Student identification as a STEM Professional and Critical Thinking Skills. 35th Annual CSU Biotechnology Symposium, Jan. 2023. Santa Clara, CA
ASBMB, March 2023, Seattle WA.

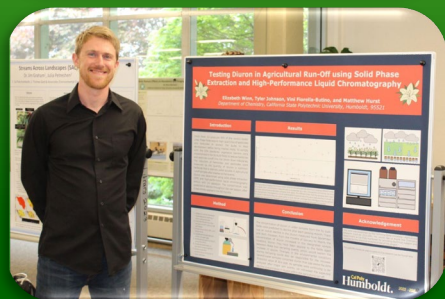
David M. Lopez*, Nicole L. Womack, Hannah M. Cornwell, Dylan T. Morris, and Jenny A. Cappuccio
Expression and Purification of G-protein coupled receptor CB2 fusion protein, 35th Annual CSU Biotechnology Symposium, Jan. 2023, Santa Clara, CA

H.

Faculty and Student Research Highlights *Hands on Experience!*

Students Make Their Mark!

Many students presented their research with Humboldt Chemistry Department Professors and in their CIRM Internships at the Cal Poly Humboldt Ideafest Symposium in 2023!



Ideafest Presentations

Logan Wolfe and Matthew Hurst

The Smith River Plain Water Quality Management Plan: A collaborative Effort Between the Regional Water Board and Cal Poly Humboldt
Cal Poly Humboldt Ideafest, May 2023, Arcata, CA

Frank Cappuccio, Jenny Cappuccio, Christopher Arias, Ezekiel Buchert, Johana Cruz Lopez, Cesar Fernandez, Elizabeth Kowalski, Elisabet Tesla Nicholas, Gabrielle, Onnenga, Kellie Pierson
Enhanced Learning in Biochemistry Using the Protein Data Bank and 3D Molecular Modeling in ChimeraX. Cal Poly Humboldt Ideafest, May 2023, Arcata, CA

Elisabeth Winn, Tyler Johnson, Vini Fiorella-Butino and Matthew Hurst

Testing Diuron in Agriculture Run-Off using Solid Phase Extraction and High-Performance Liquid Chromatography
Cal Poly Humboldt Ideafest, May 2023, Arcata, CA

Victoria Cifelli and Frank Cappuccio

Micrographic insights of etiological agents in Pacific oysters
Cal Poly Humboldt Ideafest, May 2023, Arcata, CA

Amanda Ratcliff, Sarai Tapia, David Lopez and Jenny Cappuccio

Evaluation of a Novel Cellulase to Optimize Biofuel Production
Cal Poly Humboldt Ideafest, May 2023, Arcata, CA

David Lopez, Amanda Ratcliff and Jenny Cappuccio

Analysis of a G-Protein Coupled Receptor, CB2
Cal Poly Humboldt Ideafest, May 2023, Arcata, CA

Ideafest CIRM Scholar Lightning Talks

Chemistry Alumni Heather Jackson-Pease and Matthew Porteus, MD PhD, Stanford. Engineering Endothelial Cells to Treat Pulmonary Arterial Hypertension

Chemistry Alumni Monica Rodriguez, Erin G. Brown MD, UC Davis. Effect of Placenta-derived and Bone-Marrow derived Mesenchymal Stem/Stromal cells on Neuroblastoma Cell Lines

Faculty Research Highlights *Dedicated*

Student / Faculty Research Projects!

Faculty Continue scholarly activities involving chemistry and biochemistry students with published research and competitive grant applications.

Research Experience for Undergraduates:

2023 McNair Scholar Matias Chapman-faculty advisor Prof. Josh Smith



Faculty Grants

Claire Till, Iron Concentration in Galapagos seawater samples in collaboration with University of North Carolina Chapel Hill (NSF funding)

Publications:

Marsay, C.M., W.M. Landing, D. Umstead, C.P. Till, R. Freiberger*, J.N. Fitzsimmons, N.T. Lanning, A.M. Shiller, M. Hatta, R. Chmiel, M. Saito and C.S. Buck (2022) Does sea-spray aerosol contribute significantly to aerosol trace element loading? A case study from the U.S. GEOTRACES Pacific Meridional Transect (GP15), *Global Biogeochemical Cycles*, doi:10.1029/2022GB007416.

Moore, James M. and Till, Claire P. (2023) Approaches to Assessing Nutrient Coupling in Open Ocean Datasets, *IdeaFest: Interdisciplinary Journal of Creative Works and Research from Cal Poly Humboldt*: Vol. 7, Article 2.

<https://digitalcommons.humboldt.edu/ideafest/vol7/iss1/2>

R. Tigaa, S. Kuehn, J. H. S. K. Monteiro, et al and Samuel K. Appiah (2023) Comparison of 4d- and 4f-Metal Chemistry through Spectroscopic Analysis of 1,10-Phenanthroline Coordination Compounds in Solution and Embedded Polystyrene Beads *Journal of Chemical Education* **2023** 100 (9), 3584-3594 DOI: 10.1021/acs.jchemed.3c00332

