

What's New with BB (January 1, 2026 – March 31, 2026)

Dear BB Community,

I hope you were able to enjoy some time away from the daily routine and are returning refreshed and energized for the new term.

We had a very eventful Winter quarter with several notable achievements. The Partners in Science proposal —led by Jessica Siegel — was funded by the M.J. Murdock Charitable Trust and will engage mentors including three from BB in guiding secondary science teachers from rural and nearby school districts through active research projects. This program will strengthen our outreach and impact.

On the recognition front, I was honored to receive the **2026 Outstanding Oregon Scientist Award** from the Oregon Academy of Science. Kari van Zee was celebrated with both the **Champion of Science Award** and the **Olaf Boedtker Award for Excellence in Academic Advising** from the College of Science. In addition, Hannah Stuwe as part of her **Inclusive Excellence** award, delivered a memorable live performance at PRAX, blending music and science for a wide audience—an exceptional highlight of the term.



Pictured: PRAX Inclusive Excellence event

Several of us represented the department at national meetings, promoting the Biochemistry & Biophysics graduate program along with our NIH-funded **T32 training grant** and the **GCE4All Center**, and strengthening connections with alumni.

This term, our weekly **Tuesday lunches** will serve as informal office hours with Kimberly and me in the library. This time is also intended as a space to share ideas and work collaboratively on

proposals. In the months ahead we will focus on writing and submitting a new **undergraduate training (T34)** proposal to NIH, recruiting two instructors, planning an online Neuroscience degree, and navigating upcoming faculty retirements.

Wishing you all a productive and engaging start to the term.

Below I list some of our activities and successes, compiled by Kimberly. Enjoy reading and keep up the good work.

Funded Grants:

Kate Shay was awarded \$8500 from the College of Science Equity Projects Program for her proposal, "Inclusive Laboratory Infrastructure: Ensuring Full Participation for Students with Disabilities." The funds will be used to outfit lab spaces.

M.J. Murdock Charitable Trust awarded the Partners in Science proposal for the full amount of \$450,000 for 2026-2029, allowing support for 4 teacher-mentor partnerships each year. **Jessica Siegel** is the PI on this proposal, with **Juan Vanegas, Alysia Vrailas-Mortimer, and Elisar Barbar**, as mentors. More about this program in <https://science.oregonstate.edu/research/partners-in-science>

Myriam Cotton received funding for an NSF, Division of Materials Science, Collaborative Research: Structure and Function of Direct Delivery Peptides, Role: PI

Grant Proposals Submitted:

Rick Cooley submitted an NIH R35 proposal titled "Decoding the Regulation of 1-3-3 Signaling Systems with Genetic Code Expansion" for \$2,010,635.

Alysia Vrailas-Mortimer submitted an NSF S-STEM proposal as co-PI titled "Collaborative Research: S-STEM: Building an AI-literate bio-sciences, engineering and technology workforce across institutions" for \$2,820,689.

Alysia Vrailas-Mortimer submitted an NIH R01 proposal as MPI titled "Neuronal Mechanisms of Copper Transport and Toxicity" for \$641,984

Maria Purice submitted an NIGMS MIRA titled "Non-canonical mechanisms of peptide processing and regulated secretion."

Myriam Cotten submitted an NSF proposal titled "From Ocean to Organ: Dulse Seaweed-Derived Biomaterials for Regenerative Applications", as Co-PI.

Myriam Cotten submitted an OSU/RERF, Expanding NMR Facility Capabilities with a Versatile Solid-State NMR Probe, as PI.

Elisar Barbar submitted a proposal to NIH as MPI along with Dan Zuckerman from OHSU titled “Multiscale Characterization of a Unique Class of Duplex, Multivalent IDP Systems”.

Patrick Reardon along with Jennifer Field as lead PI submitted a proposal to the Dept of Defense titled “Development and Demonstration of PFAS-LEACH-A Comprehensive Decision Support Platform for Predicting PFAS Leaching in Source Zones”.

Dave Hendrix submitted an NIGMS MIRA titled “Rethinking RNA Computational Biology: From Base Pairs to Molecular Function” for \$2,216,962.

Dan Liefwalker submitted an OSU/RERF, *High-speed centrifugation for protein purification*, as PI.

Professional Service:

David Hendrix served as a reviewer for NIH Biodata Management and Analysis study section.

Nate Mortimer served on the NIA training fellowship review panels for November 2025 (held in January 2026) and March 2026. The panel focused on neuroscience and aging, and reviewed F30, F31, and F32 proposals.

Elisar Barbar attended the JBC Editorial Board Member events and workshop at the ASBMB.

Publications:

From the *Barbar* Group

Otten L, Walker DR, **Barbar EJ***, Zuckerman DM*. (2026) [Multi-dataset Bayesian analysis synergistically boosts ITC parameter precision](#). *Biophys J.*, S0006-3495(26)00215-8. doi: 10.1016/j.bpj.2026.03.031. Online ahead of print.

From the *Clark* Group

Clark S, Mitra J, Elferich J, Goehring A, Ge J, Ha T, Gouaux E. [The protocadherin-15-LHFPL5 tip link complex is a heterotetrameric assembly in hair cell stereocilia](#). *Biophys J.* 2026 Feb 10:S0006-3495(26)00092-5.



Pictured: An image from Sarah's publication was on the cover of the March 17 issue of Biophysical Journal. Congratulations Sarah!

From the *Mehl/Cooley* Group

Vesely CH, Stanisheuski S, Lien E, Reardon P, Chung PJ, **Mehl RA**, **Cooley RB**. [Accessing intractable, phosphorylated intrinsically disordered proteins via a protease-cleavable inclusion body tag](#). *Protein Sci.* 2026 Apr;35(4):e70520. doi: 10.1002/pro.70520. PMID: 41820804.

Augustin G, Bhinderwala F, Alexander ND, Hernández I, Stanisheuski S, Monnie CM, Eddins AJ, Gangarde YM, Soloshonok VA, Oiarbide M, Landa A, Cooley RB, Gronenborn AM, **Mehl RA**. [Endogenous Site-Specific Encoding of Trifluoromethyl-Bearing Phenylalanine and Tryptophan for in-Cell ¹⁹F NMR](#). *J Am Chem Soc.* 2026 Feb 25;148(7):6744-6749.

From the *Mortimer* Group

Chung SY, Barnes JL, **Mortimer NT**. [Epigenetic role of gastrointestinal microbiota in individuals receiving hemodialysis](#). *Nephrology Nursing Journal* 52(6):573-588.

From the *Nyarko* Group

Vogel A, McWhorter M, Kwok E, **Nyarko A**. [Multivalent AMOTL1 Engages NEDD4-1 and KIBRA Through Distinct Cooperative Binding Mechanisms](#). *J Mol Biol.* 2026 Mar 15;438(6):169652. doi: 10.1016/j.jmb.2026.169652. Epub 2026 Jan 22. PMID: 41580069

Ramprasad S, Baker K, Rodriguez DJ, Kwok E, Pung L, **Nyarko A**. [Dynamic and selective competition governs binding of large tumor suppressor 1 to KIBRA and YAP](#). *Protein Sci.* 2026 Jan;35(1):e70440. doi: 10.1002/pro.70440.PMID: 41427739

From the *Siegel* Group

Felsch, K.A. & **Siegel, J.A.** (2026). [The effects of acute and repeated adolescent MDMA exposure on behavior, cognition, and the monoamine neurotransmitter systems: A review of human and pre-clinical research](#). *Behavioural Brain Research*, 504, 116098-116111.

From the *Vanegas* Group

Lewis AL, Himberg B, Torres-Sánchez A, and **Vanegas JM**. [Microscopic elasticity from MD. II. Liquid interfaces and lipid membranes](#). J. Chem. Phys. 164, 024111. (2026) [\[PDF\]](#)

Lewis AL, Himberg B, Torres-Sánchez A, and **Vanegas JM**. [Microscopic elasticity from MD. I. Bulk solid and fluid systems](#). J. Chem. Phys. 164, 024110. (2026) [\[PDF\]](#)

Poudel B, Whiting J, **Vanegas JM**, and Rempe SB. [Thermal Degradation Energy Landscapes of Fluorofentanyls: Probing the Mechanisms and Energetics of Bond Breaking](#) J. Phys. Chem. B 130, 3–10. (2026). [\[PDF\]](#)

Faculty Talks:

Nate Mortimer gave a guest lecture for the BB315 Cascades lab course. Students in the course investigated binding between host and parasite proteins, an idea first proposed during the Fall 2025 department retreat.

Ryan Mehl gave an invited talk as part of the GCE Symposium at the annual BPS Conference in San Francisco, CA Feb 24th.

Sarah Clark gave a seminar at the University of Oregon titled “Lipid superhighways of the cell” on January 13.

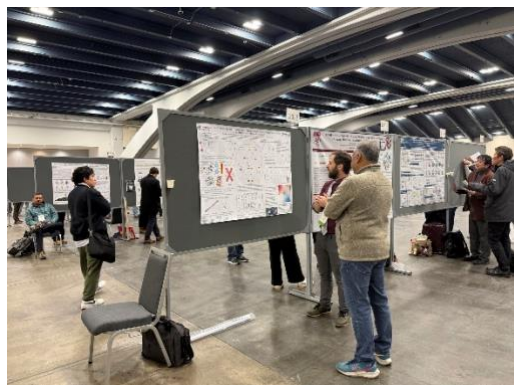
Elisar Barbar was the keynote speaker at the Oregon Academy of Science (OAS) Annual Meeting on February 28.



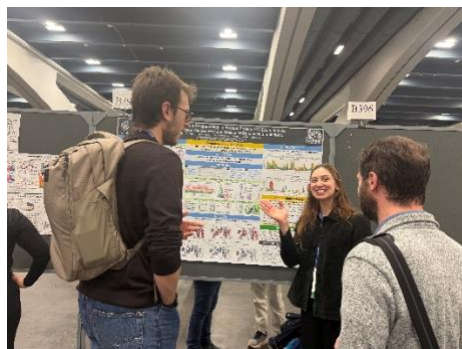
Elisar Barbar was an invited speaker to the International Women in US Academia panel on March 5th, as part of International Women’s Day 2026.

Presentations at the BPS 2026 Annual Meeting

Walker DR, Estelle A, Ammon Y-C, Song Y, Lv QH, Reardon PN, Ichikawa M, Akhmanova A, Barbar EJ. Multivalency converts disorder into rods, resolving a paradox in cellular architecture. (**platform talk**) Annual Meeting of the Biophysical Society, San Francisco, CA, February 2026. Abstract published by Biophysical Journal.

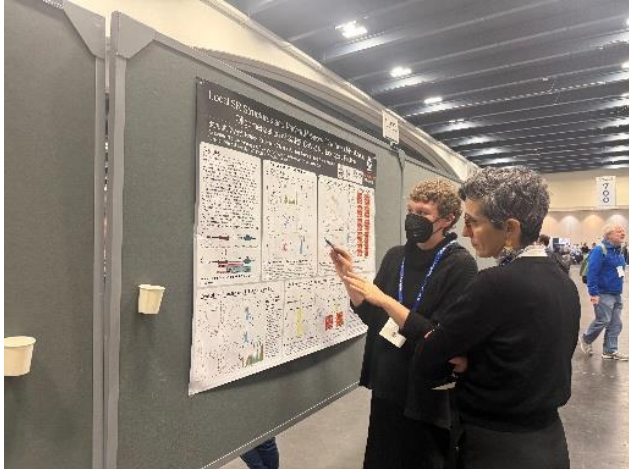


Walker DR, Otten L, Idris MO, Lasher B, Zuckerman DM, Barbar EJ. Positive and Negative Cooperativity in Dynein Assembly Unveiled via Bayesian Analysis of 39 Isotherms and a Seven-State Model. (poster) Annual Meeting of the Biophysical Society, San Francisco, CA, February 2026. Abstract published by Biophysical Journal.



Case S, Walker DR, Otten L, Barbar EJ, Zuckerman DM. Sequence-dependent Cooperativity in the Hub Protein LC8 Examined via Isothermal Titration Calorimetry and Molecular Dynamics Simulations. (poster) Annual Meeting of the Biophysical Society, San Francisco, CA, February 2026. Abstract published by Biophysical Journal.

Walker DR, Estelle A, Ammon Y-C, Song Y, Lv QH, Reardon PN, Ichikawa M, Akhmanova A, Barbar EJ. Cooperative multivalency converts disorder into rods, resolving a paradox in cellular architecture. (poster) BPS2026, San Francisco, CA.



Stuwe H, Barbar EJ. Local SR Structure and variant Mutations Fine-tune LRH-Mediated Oligomerization of SARS-CoV-2 Nucleocapsid Protein. (poster) Annual Meeting of the Biophysical Society, San Francisco, CA, February 2026. Abstract published by Biophysical Journal.

Evan Goodell, R Zhang, R Fu, WC Wimley, K Hristova, JM Vanegas, ML Cotten, Membrane Hydration Probed By High-field Oxygen-17 Solid-state NMR, BPS 2026. (Poster)

Nolan Herron, Juan Vanegas. Decoding Teixobactin-lipid II Binding: How local environments and hydration shape interaction strength. BPS 2026. (Poster and short talk)

Juan Vanegas. Local Elasticity profiles unravel the microscopic origin of membrane moduli. BPS 2026. (Poster)



Pictured: Afua Nyarko, Juan Vanegas, Hannah Stuwe and Douglas Walker at the Education & Career Opportunities Fair at BPS2026.

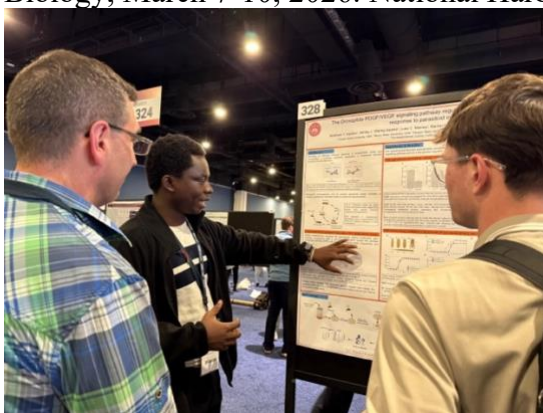


Pictured: With BB Alum Camden Driggers (right) on the last day of BPS



Presentations at the ASBMB 2026 Annual Meeting

Elisar Barbar, co-authors; Douglas Walker, Yujuan Song, presented a poster titled “Sequence determinants of cooperative binding in multivalent systems: A computational and experimental approach” at the Annual Meeting of the American Society of Biochemistry and Molecular Biology, March 7-10, 2026. National Harbor, Washington DC.



Abraham Kpirikai (Mortimer Lab) presented his research titled “The *Drosophila* PDGF/VEGF signaling pathway regulates host immunometabolism in response to parasitoid infection” at the ASBMB 2026 annual meeting in Maryland. (Poster)

Andrea Zourou (Cotten Lab) presented “A Unified Model to Describe the Transient Leakage Induced by Antimicrobial Peptides, ASBMB 2026.” (Poster)



Pictured: Elisar Barbar, Andrea Zourou (Cotten Lab) and Abraham Kpirikai (Mortimer Lab) had a grad recruiting table at the [Career and Education Fair](#) during the [2026 ASBMB Annual Meeting](#).

Poster Presentations at the Linus Pauling Day celebration:

Zach Ottman, Nick Bretz, Carrie Marian-Reardon, Abe Kpirikai, and Nate Mortimer (all from the Mortimer Lab) presented posters to members of the university community and public.

International GCE Webinars and Conferences

INTERNATIONAL GCE WEBINARS – WINTER 2026

Jan 15, 2026

<p><i>"The Molecular Level Consequences of RNA Modifications on Protein Synthesis"</i></p>  <p>Kristin Koutmou Univ of Michigan</p>	<p><i>"OrthoRep-Driven Evolution of Aminoacyl-tRNA Synthetases"</i></p>  <p>Chang Liu UC Irvine</p>
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Feb 19, 2026

<p><i>Ribosomal synthesis of non-standard cyclic backbones in vitro</i></p>  <p>Jaongoo Lee (POSTECH, Korea)</p>	<p><i>Engineering Life's Language: Streamlined Approaches for Efficient Genetic Code Expansion</i></p>  <p>Ahmed Badran (The Scripps Research Institute)</p>
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Mar 19th, 2026

<p><i>Genetic Code Expansion as a Platform for Functional Silk Fibrin Materials</i></p>  <p>Toshi Teramoto Tsukuba, Japan</p>	<p><i>Six-Resolved Mapping of the Ligandable Landscape for Targeted Protein Degradation</i></p>  <p>Satpal Virdee Univ of Dundee, UK</p>
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The **International GCE Webinar** series hosted 6 wonderful speakers this Winter. See our upcoming schedule and register for future webinars [here](#).

SMART
Symposium

SMART Symposium
The Expanding Genetic Code and Beyond

Date: September 21-22, 2026
Venue: Cloud Park International Conference Center, Shenzhen, China

ORGANIZERS

- Peng CHEN, Shenzhen Bay Laboratory, Peking University
- Shixian LIN, Zhejiang University
- Tao LIU, Peking University
- Xiaozhou LUO, Shenzhen Institute of Advanced Technology
- Ryan MEHL, Oregon State University
- Xiaoyu TANG, Shenzhen Bay Laboratory

KEYNOTE SPEAKERS

- Jason CHIN, University of Cambridge
- William DEGRADO, University of California, San Francisco
- Jay KEASLING, University of California Berkeley

INVITED SPEAKERS

- Ahmed BADRAN, Scripps Research
- Ned BUDISA, University of Manitoba
- Patrick CAI, Wellcome Sanger Institute
- Abhishek CHATTERJEE, Boston College
- Junbiao DAI, Chinese Academy of Agricultural Sciences
- Bryan DICKINSON, The University of Chicago
- Sherry Xue GAO, University of Pennsylvania
- Jiantao GUO, University of Nebraska-Lincoln
- Thomas HUBER, The Australian National University
- Kathrin LANG, ETH Zürich
- Chenli LIU, Shenzhen Institutes of Advanced Technology
- Haiyan LIU, University of Science and Technology of China
- Pellong LU, Westlake University
- Ryan MEHL, Oregon State University
- Gerard ROELFES, University of Groningen
- Jiangyun WANG, Institute of Biophysics, Chinese Academy of Sciences
- Haifeng YE, East China Normal University
- Demin ZHOU, Peking University

More speakers to be announced.

Please complete your registration by September 17, 2026 via the website (<https://symposia.smart.org.cn/>) or the QR code below. Should you require further assistance, please reach us at symposium@smart.org.cn or by phone at (+86) 175 2236 4121. Further details are available on our website: <https://symposia.smart.org.cn/>

Scan for Register

Scan for Official Account

The next **GCE Conference** will be in Shenzhen, China in September! See the flyer below for information on Speakers and the link to register!

Grad Specific News

First-year BB grad student **Xingyi Guo** will be joining the Hendrix Lab

Tepary Cooley (Purice Lab) was awarded the 2026-2027 Mark Sponenburgh and Caron & Don Reed Graduate Fellow Award

Nadia Gonzalez (Vrailas-Mortimer Lab) was awarded the 2026-2027 Marion T. Tsefalas and Simone and Balz Frei Graduate Fellow from the LPI.

First-year graduate students **Izzy Montini**, **Emelia Egbe**, and **Elli Vickers** were each awarded a 2026 LPI “Healthy Aging Research” Fellowship during their rotations in the Vrailas-Mortimer lab.

Vrailas-Mortimer PhD student Brooke Allen successfully defended her dissertation.

Cameron Call (Vrailas-Mortimer Lab) and **Kristen Snitchler** (Mortimer Lab) both passed their preliminary exams.

Nadia Gonzalez as part of her office internship created a story about the Clark Lab and posted to the BB website – check it out here: <https://biochem.oregonstate.edu/impact/2025/05/news-from-the-clark-lab>

Alumni News

Postdoctoral fellow Brittany Lasher (Hendrix Lab) had an abstract accepted for a lightning talk at the 2026 RNA Society Meeting. Congratulations Brittany!

I (Elisar) had the pleasure of reconnecting with **Tim Rhoads (PhD 2012, with Joe Beckman)** at the ASBMB meeting. Tim is now an assistant professor at the University of Wisconsin, Madison.

We also enjoyed reconnecting with **Camden Driggers (PhD 2014, with Andy Karplus)**, and as a group from BB—including Hannah Stuwe, Douglas Walker, Nolan Herron, Juan Vanegas, Afua Nyarko, and myself—shared dinner at BPS in San Francisco with **Heather Bolstad (BS 2006)**, and **Joe Kim (BS 2018)**.

We were delighted to host **Ben Youngblood (BS 2001)** as a seminar speaker. Ben is currently a faculty member at St. Jude Children’s Research Hospital.

Undergrad News

Kylie Boor (Purice Lab) is a runner-up for the Honors College Hendricks Scholarship.

Gianna Welliver defended her Honors Thesis "Investigating the Host's Innate Immune Response in OsHV-1 Latently Infected Pacific Oysters After Heat Stress and Immune Suppression."

Carla Khoury (BMB '26) defended her Honors Thesis "Inhibition of Sphingolipid Pathway Alters Symbiosis Establishment in a Cnidarian-algal Association"

Two students from the Mortimer Lab gave presentations at the National Genomics Education Partnership Student Symposium on February 28:

- Sarah Baron presented "Gene Annotation and Functional Prediction in the Parasitoid Wasp *Ganaspis sp. 1*"
- Shannon Olson presented "Gene Annotation of *Ganaspis hookeri* Venom Proteins Reveals Conserved Candidates for Host Immune Manipulation"

Athena DeGennaro (BMB, Danelishvili Lab) is a Goldwater nominee.

Thank you to **Kari van Zee** for organizing the annual celebration "Biochemistry is a Piece of Cake" for our senior class! Many thanks to Lauren Dalton, Kate Shay, Ally Erlendson, Tanushri Kumar, and Autumn Vander Linden for their help!





Awards



Elisar Barbar received the 2026 Outstanding Oregon Scientist Award!

The Oregon Academy of Science is dedicated to promoting scientific inquiry, research excellence, and public engagement in science throughout the state of Oregon. This award recognizes individuals whose careers demonstrate outstanding scholarly achievement, leadership

in the scientific community, excellence in mentoring and education, and a sustained commitment to advancing science in Oregon and beyond. She was also the keynote speaker at their annual meeting at Western Oregon University



Kari Van Zee received both the Olaf Boedtke Award for Excellence in Academic Advising and the Champion of Science Award from the College of Science!

Lauren Dalton (with co-author Robin Young and illustrator Heather Ng-Cornish) received the 2026 UBC Open Education Resources (OER) Excellence and Impact Award for their open online textbook “Fundamentals of Cell Biology”. Read more about this award here: <https://www.ams.ubc.ca/what-we-stand-for/campaigns/teaching-learning-champions/>

Hannah Stuwe (Barbar Lab), the recipient of the College of Science Inclusive Excellence Award, incorporated her incredible talents with music and vocals in her talk!





Read the IMPACT article here: <https://science.oregonstate.edu/impact/2026/02/multimedia-experience-in-prax-what-can-a-punk-inspired-music-scene-teach-scientists>

**OSU ELECTRON
MICROSCOPY FACILITY**

OPEN HOUSE

Come enjoy refreshments and catering, tour the OSU EMF, and discuss your electron microscopy needs with staff!

Look forward to staff-led demos:

- Titan TEM with new side view camera
- Helios SEM "auto slice-n" cell viewing
- 3D data set visualization and modeling

April 10th 2-4 PM
Linus Pauling Science
Center, Room 145

For more information and accessibility accommodations, contact kerrca@oregonstate.edu

Note the beautiful images collected at the facility. The third image from the top is from my lab—a disordered multivalent protein bound to 15 LC8 dimers (zoom in to see!), and one of the very few examples of disordered protein complexes captured in the EM literature. Kudos to Rebecca from the EM facility for her impressive work in successfully staining and imaging such challenging samples.

If others are working on similar projects or attempting to visualize dynamic protein complexes, I strongly encourage you to reach out to Rebecca—she is willing to try anything and make it work!

Upcoming Events:

April

- 1: Seminar Speaker **Dr. Matthew Eddy**, University of Florida
- 2: COS Town Hall & Faculty Research Showcase Poster Session
- 3: BPS Journal Club – Evan/Ethan
- 3: Faculty Meeting
- 8: Student Talks – Davis Sharts (Cooley Lab) and Nick Bretz (Mortimer Lab)
- 9: Grants Management Summit for PIs
- 9: Beaver Research Hub Training for COS
- 8-10: OSU Site Accreditation Visit
- 10: Student Talks – Sarah Perkel (Clark Lab) and Abraham Kpirikai (Mortimer Lab)
- 15: Student Talks – Kristen Snitchler (Mortimer Lab) and Jenna Beyer (Mehl Lab)
- 17: BPS Journal Club – Hannah S/Davis
- 22: Seminar Speaker **Dr. Diana Libuda**, University of Oregon
- 24: BPS Journal Club – Andrea/Tepary
- 29: Dam Proud Day

May

- 1: BPS Journal Club - Moriah/Nadia
- 1: Faculty Meeting
- 6: Student Talks – Andrea Zourou (Cotten Lab) and Mahya Payazdan (Gombart Lab)
- 8: BPS Journal Club – Joline (Tsoo King Lecture paper)
- 11: COS Graduate Student Research Showcase**
- 13-14: Tsoo King Lecture Series, **Dr. Veronica Jimenez**
- 14: Poster session
- 15: BPS Journal Club: Abraham/Sarah P
- 20: Cameron Call 3rd year talk
- 22: BPS Journal Club – Hannah L (Meghna Gupta paper)
- 25: Memorial Day
- 27: Seminar Speaker **Dr. Meghna Gupta**, OHSU
- 29: BPS Journal Club – Shelby/Nolan

June

- 3: Ian Noonan 3rd year talk
- 5: Journal Club – Hannah L/Joline
- 5: Faculty Meeting
- 10: Seminar Speaker **Dr. Selva Baltan**, OHSU
- 12: BB Graduation Ceremony
- 13: Commencement:
- TBD: End of Year Celebration

Thank you for reading this far, and we will catch up again at the beginning of Summer. Please send Kimberly your events/activities for the next issue. Have a great Spring term!

Elisar