COLLEGES OF SCIENCE & AGRICULTURAL SCIENCES **DEPARTMENT OF MICROBIOLOGY**

SMALL TALK

WINTER 2020

Seeking student success during a pandemic

SMALL
TALK
Winter 2020

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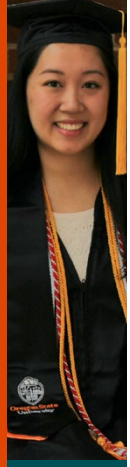

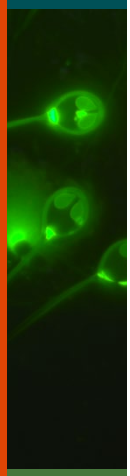

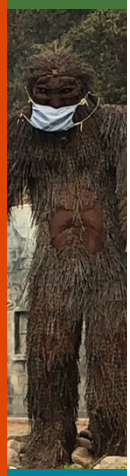

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On the cover — Microbiology faculty, staff and students are getting creative and finding new ways to connect, teach, work and learn during a pandemic.

From the Head

Steve Giovannoni

I welcome you all to this edition of Small Talk, where you will find uplifting examples that show what can be achieved by working together to build a professional organization dedicated to science and education, and to the principle that everyone can participate and be successful in this enterprise. As the new Department Head, I am fortunate to be in a position, together with all of you, to make a difference.

I am happy to welcome our newest faculty member, Dr. Hannah Rowe, to our department. A human respiratory disease virologist, Hannah joins us from St. Jude Hospital in Memphis. Her fresh ideas about interactions between viral and bacterial pathogens bring a new chapter to our department, which is renewing emphasis on disease research and expanding the BioHealth Sciences major.

One of our foremost challenges has been making our department more diverse and equitable to create a better future. We have made progress this year. Our Admissions Committee took a campus leadership role in removing barriers that were slowing the advancement of underrepresented groups, and our faculty partnered with students to gain grants that increase underrepresented minorities among our undergraduate and graduate student populations.

As the new Department Head, I opened our all-department meetings to all faculty, staff and students and shared more widely information about our department to promote open discourse, participation and fact-based planning.

Our Core Values Committee has been a champion of these causes and is promoting the implementation of codes of conduct aimed at making our department a more just and equitable place. I pledge that my highest priority in the years ahead will be to increase the representation of minority groups in our staff and faculty. I look back on the lost opportunities of the past as a personal failure to increase the diversity of our faculty and will not shy from those challenges in the future.

There is joy in the stories that follow, and also optimism about what we can do in the time ahead. Our faculty have been tremendously successful in their research and in attracting funding to increase training opportunities for all students. The challenge ahead is to achieve equivalent success in funding our educational programs, particularly in a changing world where there is heightened awareness of the need for well-trained microbiologists who are skilled in laboratory, field and computational microbiology.

We acknowledge that Oregon State University in Corvallis, OR is located within the traditional homelands of the Mary's River or Ampinefu Band of Kalapuya. Following the Willamette Valley Treaty of 1855 (Kalapuya etc. Treaty), Kalapuya people were forcibly removed to reservations in Western Oregon. Today, living descendants of these people are a part of the Confederated Tribes of Grand Ronde Community of Oregon (grandronde.org) and the Confederated Tribes of the Siletz Indians (ctsi.nsn.us)

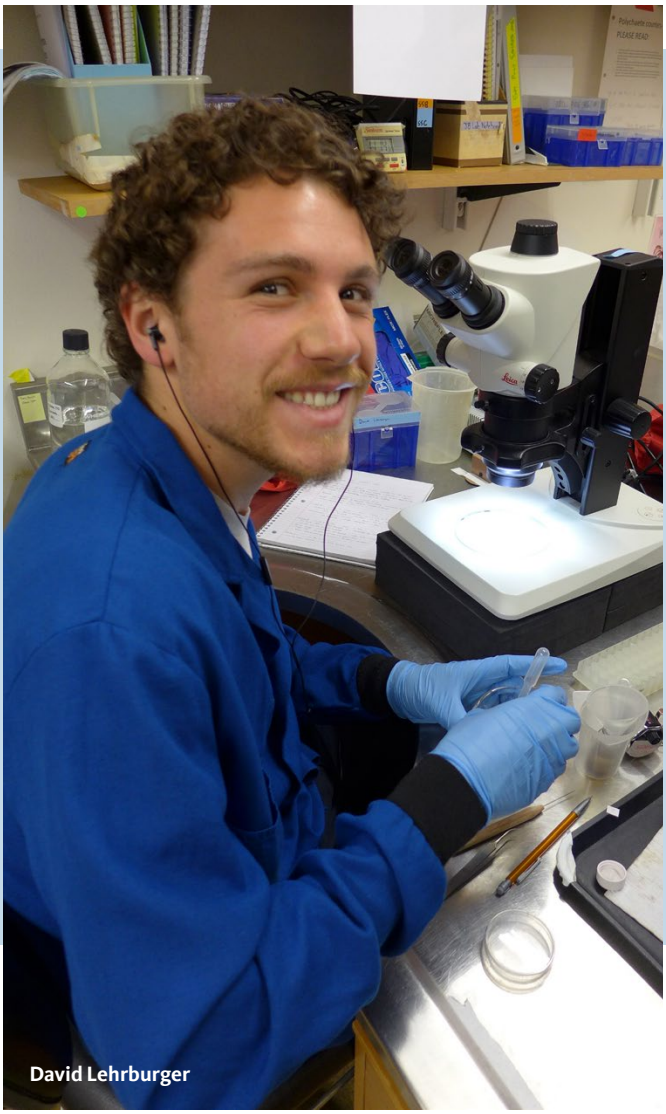
Bright minds, **bold moves**

Students persevere through a challenging year


Bailey Burk


Sophia Jadzak


Marilyn Tran


David Lehrburger

OUR UNDERGRADUATES

We would like to take this opportunity to honor the 183 microbiology (MB) and biohealth sciences (BHS) students who graduated in 2020. This hardworking group persevered through the challenges of the COVID-19 pandemic to finish strong. Below are just a few highlights. Congrats, Class of 2020!

Jay Bickell (MB) is now assistant to the manager of the University of Washington BSL3 research facility in Seattle.

Sadie Blake (BHS) is attending the OSU/OHSU College of Pharmacy and plans to pursue a residency in infectious disease.

Bailey Burk (MB) is now working as a microbiologist at a vineyard in California. She appreciated the smaller microbiology major, saying "I enjoyed getting to know all the students and faculty, and being part of that community."

Claire Ciabattari (BHS) entered the M.S. Program in BioMedical Sciences at Rocky Vista University this fall. As an undergraduate, Claire served as the Chair of OSU Student Health Advisory Board for two years and held leadership roles for Delta Gamma Sorority and the OSU SafeRide Program. She was also an active volunteer at Good Samaritan Regional Medical Center in the Labor and Delivery department and at the Community Outreach Inc. free clinic.

Emily Do (BHS) is working as an M.A./scribe through a fellowship graduate program at a local Federally Qualified Health Center. She plans to apply to Physician Assistant programs next year and earn a Master's of Public Health degree, with the aim of serving rural communities.

Erica Ewton (MB) is enrolled in OSU's accelerated master's program in microbiology, and then plans to continue her studies with a Ph.D. and post-doc. "I love learning, and the idea of the microbiology field constantly evolving excites me."

Sophia Jadzak (MB) joined the Bartholomew Lab in 2017 to perform quantitative PCR assays and microscopical sorting of aquatic invertebrates. As a SURE Science Scholarship recipient, Sophia was able to apply these lab skills to her own research project, which culminated in her first oral research presentation at OSU's annual RAFWE symposium in May 2020. Sophia is now based in Bend where she works in a hospital operating room.

Taylor Kreul (BHS) is completing a yearlong internship with Genentech while working on her medical school application.

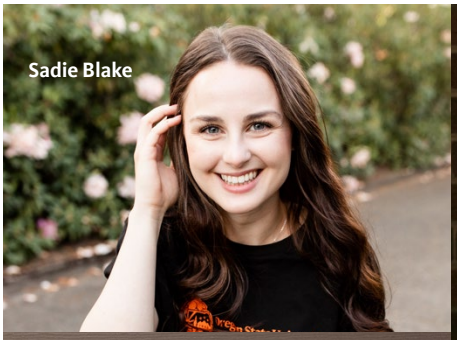
Ava Krueger (BHS) is beginning her master's program in scientific illustration at Zuyd University in the Netherlands. While at OSU, Ava also completed a studio art minor, held a part-time job on campus and studied abroad in Italy.

David Lehrburger (Biology) was a SURE Science Scholar, mentored by Dr. Atkinson, and expanded his research into an Honors thesis in the Bartholomew Lab. His research explored the life cycle of *Sphaerospora* – a primitive parasite of Willamette River sticklebacks. "I am forever grateful to all members of the Bartholomew Lab and the SURE Program for providing me with this incredible and life-changing opportunity." David continues to assist the Bartholomew Lab as a field technician and is working as a medical scribe. He plans to apply to medical schools in the summer of 2021.

Jacob Maynes (BHS) is beginning medical school this fall at Lake Erie College of Osteopathic Medicine. Jacob graduated in three years and also volunteered in Dr. Colin Johnson's lab, all while commuting and working as a hospital scribe for an ER doctor in Roseburg, Oregon.

Kelly Shannon (MB) is continuing his studies as a microbiology graduate student in the department.

Marilyn Tran (MB) was co-president of the Microbiology Student Association and was accepted into the Oregon Institute of Technology Medical Laboratory Sciences program.


Sadie Blake


Jacob Maynes


Emily Do

Opening doors for underrepresented scholars

Almost a quarter of Oregon's high school graduates were Latinx in 2020, yet only around 9% of students graduating from OSU with a bachelor's degree were Latinx in the same year. Similar statistics hold for Black, Native American and other non-Caucasian groups in Oregon. **Kate Field**, microbiology professor and bioresource research director, has been working to remedy these long-standing imbalances for the last decade. During that time, Field and her team have been awarded six different USDA-NIFA Multicultural Scholars Program (MSP) grants, which provide near-full tuition, multi-year scholarships to undergraduates from underrepresented groups in the food, agriculture, natural resource and human sciences.

The first five grants each supported six or more MSP Scholars through their graduation and an additional four to six upper-division peer mentors with smaller scholarships. The creation of paid peer mentors contributed significantly to the program's success. Students in the first four MSP programs achieved a very high 6-year graduation rate (88% in a STEM major, 96% overall), and many have gone on to graduate and professional programs.

The latest MSP grant will begin in 2021. "This grant is different from our previous MSP grants, because it targets Migrant and Seasonal Farmworker (MSF) students, some of the most marginalized students in the U.S.," said Field.

Field and the MSP team received the College of Agricultural Sciences Diversity Achievement Award in 2020, and in 2019 they received the University Vice-Provost Award for Excellence for Outreach and Engagement for leading a student service-learning trip to Puerto Rico after Hurricane Maria.

OUR GRADUATE STUDENTS

Moving up, moving on

Congratulations to our eight graduate students who defended since the last newsletter.

Elizanette Lopez (M.S., Kent/Sanders) studied the effects of elevated temperature on *Mycobacterium chelonae* growth and mycobacteriosis in zebrafish. She was selected to participate in the Oak Ridge Institute for Science and Education (ORISE) Fellowship program at the Centers for Disease and Control (CDC) Biorepository in Lawrenceville, Georgia. Passionate about infectious disease research, the fellowship will allow her to process samples from COVID-19, the most pressing public health crisis today.

While at OSU, Lopez was a passionate advocate for underrepresented minorities. She was an active member of the Microbiology Graduate Student Association, Ethnic Minorities United in STEM and a founding member of the Women of Color Caucus. When the COVID-19 pandemic disrupted the end of her graduate studies, Lopez began volunteering with OSU's widely covered TRACE-COVID-19 project, gaining valuable experience in public health microbiology.

Eric Moore (Ph.D., Halsey) is working as a postdoc at Los Alamos National Laboratory on a project that aims to improve the performance of crop plants under drought through modification of the soil microbiome. For his Ph.D., Eric studied the impacts of microbial chemical interactions on marine plankton physiology. "I will especially miss the many gatherings that brought a lot of the graduate students and postdocs together, like the student retreats or the department holiday events," reflected Eric.

Winni Wang (Ph.D., Mueller) was awarded the Sea Grant Knauss Fellowship, which connects graduate students interested in policy to legislative and executive branches of the federal government. She will start working with NOAA OAR's Office of Ocean Exploration and Research in February 2021. Winni's thesis focused on seagrass microbiome responses to environmental perturbations.

Nicole Kirchoff (Ph.D., Sharpton) researched the gut microbiome of at-risk companion and food animals while at OSU. She is now a postdoctoral scholar in Dr. Kat Milligan-Myhre's lab at the University of Connecticut, studying the microbial composition and successional dynamics of threespine stickleback fish. Her work will add to our understanding of host-microbe interactions in fish model systems.

IN THEIR WORDS

Incoming graduate students

1 **Erica Ewton:** My graduate work focuses on analyzing data collected from bleached corals surrounding the Pacific island of Mo'orea. I will test whether certain microbiomes assist the corals to resist and recover from bleaching, which will advance our understanding of how various coral reef components impact marine ecosystems.

2 **Vaishnavi Padaki:** My research will investigate the microalgal production of biogenic volatile organic compounds (BVOCs) to understand how algal-bacterial interactions control sea-air emissions of BVOCs.

3 **Alexandra Phillips:** I will study the connection between the microbiome-gut-brain axis, specifically in Autism Spectrum Disorder.

4 **Kelly Shannon:** My research will focus on the biogeochemical effect that beaver ponds have on Arctic permafrost, where their dams can lead to an increase in the depth of the soil active layer.

5 **Michael Sieler:** My research involves developing novel molecular and computational methods to better understand how host-gut microbiome interactions impact health and how this knowledge can be used to treat disease.

6 **Jack Williams:** My project is an investigation of the pangenome of the SAR92 clade of heterotrophic marine *Gammaproteobacteria*, which has recently been tied to the carbon cycle.

Congratulations!

Microbiology awarded 31 undergraduate and 13 graduate scholarships for the 2020–21 year, totaling $54,650. The following graduate students received 2020–21 Graduate Scholarship and Fellowship awards:

Nicole Kirchoff
Mark H Middlekauf Outstanding Graduate Teaching and Service in Microbiology Scholarship

Ben Americus
Eugene W. Seitz Microbiology Ph.D. Support Scholarship

Bryce Penta & Savannah Leidholt
Sheila Van Zandt Research Experience

Sofiya Yusova
Winton Scholarship

Parker Smith
Excellence in Microbiology Scholarship

Lindsay Collart, Sebastian Singleton & Parker Smith:
Nicholas L. Tartar Graduate Student Fellowships

Grace Deitzler & Grace Klinges:
NSF Fellowships

Rebecca Maher
Ford Foundation Fellowship

Vaishnavi Padaki
OSU Provost Fellowship

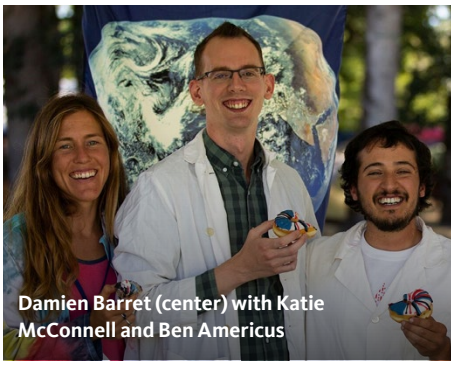

Sebastian Singleton


Kristina Baker

Kristina Baker (M.S., Crump) focused her studies on seasonal variation of microbial communities in Arctic lagoons. She presented her research in January at the Alaska Marine Science Symposium in Anchorage. Her thesis formed a manuscript, now under review in Frontiers in Microbiology.

Ben Americus (M.S., Atkinson/Bartholomew) studied nematocyst discharge in parasitic cnidarians and has continued into a Ph.D. program to develop new tools for predicting salmon disease.

Sofiya Yusova (M.S., Alexander/Bartholomew) studied the risk of enteronecrosis from climate changes on Deschutes River salmonids. She is now a senior research assistant at OHSU. In a couple of years, she hopes to pursue a Ph.D.


Damien Barret (center) with Katie McConnell and Ben Americus

Damien Barrett (Ph.D., Bartholomew) studied the genomics of rainbow trout with differential resistance to the parasite *Ceratonova shasta*. He is now a research associate in the Hom Lab at the University of Mississippi. Damien was a regular contributor to the School of Life Sciences team's food drive effort and its annual chili cook-off, which he won first place in 2018 and 2020.

NSF and NIH support

Ph.D. candidate **Grace Deitzler** received the National Science Foundation (NSF) Graduate Research Fellowship Program award in 2020. Her project examines the honeybee microbiome as a way to conserve declining bee populations. In addition to her honeybee research, Deitzler also studies possible connections between the human microbiome and autism. Passionate about science communication, she is the president and co-founder of Seminarium.

Dr. Michael Kent received a Diversity supplement from the NIH to support Microbiology Ph.D. candidate **Corbin Schuster**, which will support Corbin to develop a diagnostic assay and the longitudinal characterization of the disease transmission dynamics of *Pseudoloma neurophilia*.


Grace Deitzler

Making waves

Microbiologists making a difference

Coral expert named Pernot Distinguished Professor

Marine ecologist and Associate Professor **Rebecca Vega Thurber** has been appointed the Emile F. Pernot Distinguished Professor in Microbiology by the Colleges of Science and Agricultural Science. The award was established with a gift from Mabel Pernot, the daughter of Emile Pernot, in honor of his historic legacy as a founder of the microbiology department more than a century ago.

"I hope to push further our goals in advancing equity, diversity and inclusion in STEM education, and I plan to use aspects of this award to increase awareness of the threats that ecosystem declines have on local and native communities and cultures," she said.

The director of the Global Coral Microbiome Project, Vega Thurber's pioneering scholarship has influenced some of the most cutting-edge coral health and marine virology projects in the world. Her work formed the basis of "Saving Atlantis," an OSU feature-length documentary available on Amazon Prime video, that explores the causes behind the destruction of coral reef ecosystems and solutions to protect them.

A member of OSU's faculty since 2011, she has mentored 10 Ph.D. students, eight postdoctoral students and more than 20 undergraduates in her lab. Vega Thurber has been awarded $7.26 million in grants by the National Science Foundation, the Gordon and Betty Moore Foundation and other agencies.

Welcome Hannah Rowe!

This fall, we welcomed **Hannah Rowe** as a tenure-track assistant professor. Rowe received her Ph.D. from The Wayne State School of Medicine and was a Postdoctoral Fellow at St. Jude Children's Research Hospital in Memphis. A bacteriologist and virologist, her research focuses on bacterial-viral interactions during respiratory infection, which can help suggest why some people have uncomplicated influenza disease while others end up hospitalized with secondary bacterial pneumonia, and why some people are more likely to transmit influenza A virus than others.

Awards well deserved

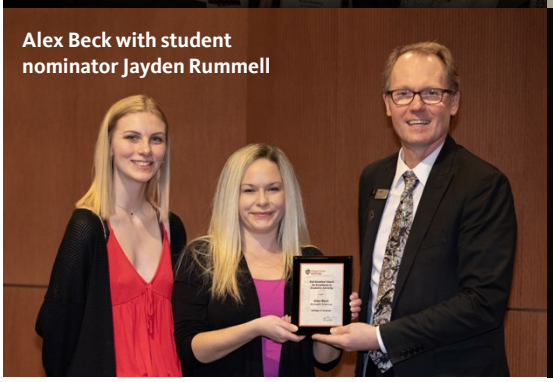
Several department faculty and staff were awarded College of Science awards in 2019-20. At the 2019 Fall Faculty and Staff Awards ceremony in November, **Mary Fulton**, assistant to the department head, received the Gladys Valley Award for Exemplary Administration Support. Mary has been with the department for 16 years and has been a backbone of support for 3 Microbiology and 2 Biochemistry & Biophysics department heads. Thank you, Mary!

Associate Professor **Kimberly Halsey** also received the Dean's Early Career Achievement Award for her groundbreaking research and scholarship on the ocean carbon cycle that is opening new areas of scientific inquiry and earning her the respect of the international scientific community.

Steve Giovannoni and Ph.D. candidate Stephen Noell

Kimberly Halsey and Dean Roy Haggerty

James Fox



Alex Beck with student nominator Jayden Rummell

Mary Fulton

New leader at the helm

Join us in welcoming professor **Steve Giovannoni** as the new head of microbiology! Over his past 32 years at OSU, Giovannoni's research has spanned topics including the carbon cycle and ecology in ocean ecosystems, microbial diversity and genomics, and working to predict what will happen as the oceans warm and become more acidic.

Committed to increasing opportunities for more students to study science, the Giovannoni Lab works with OSU's Science and Math Investigative Learning Experiences Program, a pre-college program that helps prepare minority, low-income, historically underrepresented and other educationally underserved students from rural areas to pursue STEM careers.

He founded and directs the OSU High Throughput Culturing Laboratory that distributes cultures and DNA to more than forty institutions around the world. In 2012, Steve received the Jim Tiedje Award, a lifetime achievement award from the International Society for Microbial Ecology.

In February, the College celebrated its Teaching and Advising awards ceremony, where **Alex Beck**, BioHealth Sciences advisor, received the 2020 Olaf Boedtker Award for Excellence in Academic Advising. Biohealth sciences student Jayden Rummell presented the award, saying "Alex is a phenomenal advisor, confidant and friend. She has helped me in a way that no other advisor has." Thanks for all your hard work, Alex!

Microbiology postdoctoral fellow **James Fox** received the Postdoctoral Excellence Award at OSU's 2020 University Day Awards Ceremony in September. A member of the Halsey lab, Fox developed a new computational model that greatly improves descriptions of phytoplankton physiological 'health' over a broad dynamic range that is being applied to understand ocean biogeochemical cycles. Fox is also the professional development coordinator of OSU's postdoctoral association, where he developed a new seminar series related to the academic tenure process.

Big discoveries

in the smallest places

Microbiome connected to child behavior

Research led by Associate Professor **Thomas Sharpton** is the first to link the behavior of 5 to 7-year-old children and their microbial profiles. The results show that behavior, socioeconomic stress and the parent-child relationship could be associated with markedly different microbiome profiles.

"Kids' development trajectories are affected by their own genes and environmental factors, and also by the community of microbes living in, on and around their bodies," said Sharpton.

The findings, published in mBio, suggest the microbiome can shed light on which children are heading toward mental health challenges.

Study may lead to revised climate models

Postdoc Luis Bolaños and Professor **Steve Giovannoni** led the first-ever North Atlantic winter sampling of phytoplankton. As one of the largest natural carbon sequestration mechanisms, the planet's ecological health depends on regular plankton blooms, like the spring event that can cover thousands of miles each year.

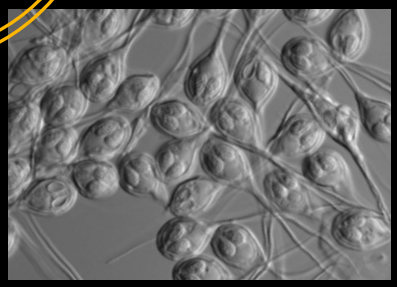
Troublingly, the results of the study revealed cells smaller than expected, which may cause climate scientists to adjust their models for the amount of carbon that is absorbed by the North Atlantic phytoplankton blooms. The sampling, part of NASA's North Atlantic Aerosols and Marine Ecosystems Study, was published in March 2020 in the International Society for Microbial Ecology Journal.

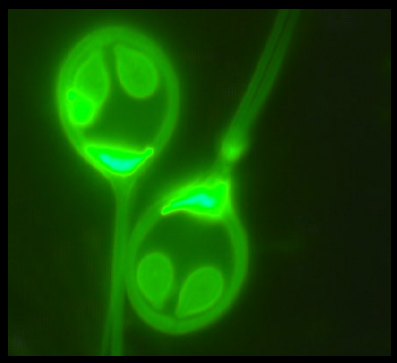
A boon for meat lovers

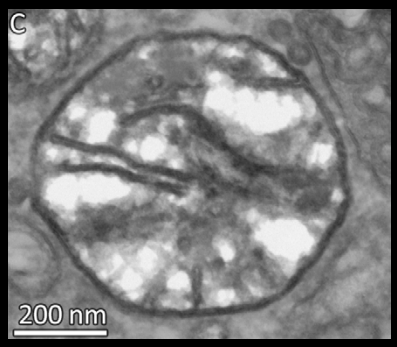
Post-doc **Veronika Kivenson** and **Steve Giovannoni** discovered that the metabolic process of a common gut bacteria — *Bilophila*, which is associated with an animal-based diet — seems to have a favorable effect on cardiovascular disease. Their findings suggest the possibility of probiotic treatments for arteriosclerosis, the dangerous hardening and thickening of the arteries that causes strokes and heart attacks. The condition is also linked to smoking, diet, age and a range of genetic causes.

Kivenson and Giovannoni found that *Bilophila* may metabolize TMA, which is converted to TMAO in the liver and promotes the buildup of fatty plaques.

"That means those bacteria are in effect severing a key link in the cardiovascular disease chain," said Kivenson. The findings were published in mSystems in October 2020.







Redefining what it means to be an 'animal'

Microbiology Associate Professor **Stephen Atkinson** and Professor **Jerri Bartholomew** have discovered the first animal that doesn't need oxygen to live. Previously, scientists believed that aerobic respiration, a vital source of energy, was ubiquitous to all animal life. The newly discovered animal, a salmon parasite known as *Henneguya salminicola*, is a tiny 6-celled organism related to jellyfish and corals. Rather than consume oxygen directly, it has evolved to steal nutrients from the muscular tissue of the host, saving valuable energy. "Our findings expand our understanding of what it means to be an animal, and shows that even complex life can evolve a way to succeed in environments without oxygen," said Atkinson.

BANNER YEAR FOR NEW FUNDING

Microbiology faculty were awarded over $6 million in new research funding this year. Congratulations to all!

James Fox and **Kimberly Halsey** received $421K from the NASA Ocean Biology and Biogeochemistry Program for a project that will use satellite remote sensing to assess the impacts of climate change on the sensitivity and resilience of marine ecosystems over the next three years.

Halsey received a $664K grant with **Steve Giovannoni** from the NSF Biological Oceanography program to examine the impacts of key environmental variables on the types and amounts of volatile organic compounds produced and consumed by marine microbes. Halsey was also co-PI on a $1.13M NASA Ocean Biology and Biogeochemistry grant with faculty from OSU (Behrenfield and Graff, BPP) and the University of Maine (Boss), in which she will characterize day-night differences in phytoplankton cell properties to understand migrating zooplankton using satellite remote sensing.

Stephen Atkinson and **Jerri Bartholomew**, with collaborator Tamar Lotan at the University of Haifa, received a $320K grant through the Binational Science Foundation to study host detection and nematocyst discharge in parasitic cnidarians.

Julie Alexander and Kris Homel (ODFW) received $10K from the Oregon Sea Grant Program Development Grants to test Oregon Coast chum salmon for resistance to infection by *Ceratonova shasta* genotypes.

Rebecca Vega-Thurber with Deron Burkepile at UCSB was awarded $799K for a 4-year NSF Biological Oceanography project to study the interactive effects of herbivory, nutrient enrichment, and temperature in coral reefs and their associated microbiomes.

Giovannoni received $1.3M from Simons Foundation International: BIOS-SCOPE II to study microbial oceanography in the North Atlantic Subtropical Gyre. This grant funds an international team of investigators for 5 more years of research in Bermuda.

Vega-Thurber, **Maude David**, **Ryan Mueller**, and **Thomas Sharpton**, along with Xiaoli Fern (College of Engineering), were awarded a 4-year $3M NSF grant to study how aquatic animal- and plant-associated microbial communities respond to ecological stress associated with human activity, including climate change.

Michael Kent received $114K from ODFW for master's student Stephanie Nervino to study intestinal pathogens and links to pre-spawning mortality in Chinook salmon. Kent also received a $144K NIH ORIP supplement to promote diversity in health-related research. The funds support his Ph.D. student Corbin Schuster.

Sharpton, Giovannoni, Robyn Tanguay (EMT) and Fred Stevens (College of Pharmacy) were awarded a 5-year $2M grant from NIH to determine how environmental pollutants impact the development of the gut microbiome and the consequences of these effects on vertebrate behavior.

Sharpton, with collaborators from OSU (PI Fred Stevens, Pharmacy), PNNL and the National University in Natural Medicine on a 5-year, $1.5M NIH grant to study how the gut microbiome metabolizes the dietary supplement Xanthohumol and what the implications of this metabolism are on Inflammatory Bowel Disease.


Julie Alexander

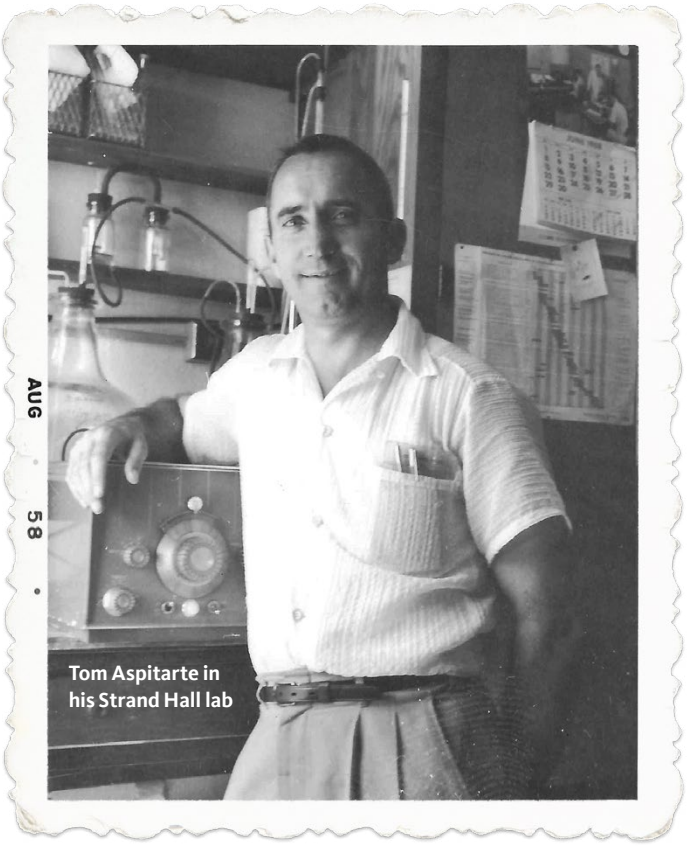
Thomas Sharpton and Nicole Kirchoff


Ryan Mueller

In Memoriam

Remembering Thomas Aspitarte

Written by daughter, Ann Kimerling



Tom Aspitarte in his Strand Hall lab

One hundred years ago (November 13, 1920), **Thomas Aspitarte** was born in Gooding, Idaho. His studies at the University of Idaho were interrupted by World War II, during which he enlisted in the Merchant Marines with his brother and cousin.

After the war, Tom returned to the University of Idaho where he married Martha Roberts and completed his B.S. in Bacteriology. In 1950, they moved to Corvallis, with their daughter Ann, and he began his doctorate under Dr. Walter Bollen. The small family lived in married student housing near the railroad tracks where Magruder Hall and the OSU College of Veterinary Medicine are located.

They ran through their savings in two years (Merchant Marines veterans didn't receive GI Bill benefits), so in 1953 he stopped at a Master's Degree and accepted a position at Commercial Solvents in Terre Haute, Indiana.

The family, which now included a son, spent two years in Terre Haute where Tom worked on commercial applications of penicillin. Then in 1956, the family, which had added another son, moved back to Corvallis, and Tom began his doctoral research in plant pathology.

During these doctoral research years, the family of five lived in married student housing in the median strip of 30th St. between West Dining Hall and Dryden Hall. Their tiny apartment was surplussed Camp Adair officer barracks consisting of two tiny bedrooms and a kitchen/living 'room.' The living room looked into the construction area that became West Dining Hall.

Children of OSU married students were not allowed to attend Harding Elementary School (family lore says that Harding was for the 'town' kids). The Aspitarte children walked to school along the railroad tracks, crossing at Gill Coliseum and ending at Roosevelt Elementary close to Avery Park, which closed in 1975. Their daily walk took them past Wiegand Hall to the OSU Horse Barns (now West greenhouses).

> "We children were rarely allowed into Strand Hall—
>
> **—since it was dangerous for small kids, disruptive to the research, and we were too noisy. So we waited for our father outside, roller skating on the Quad and climbing the trees by Strand Hall."**
>
> Ann Kimerling, remembering OSU campus in the 1950s

A favorite memory of Ann's was finding a quarter in the street and treating her siblings to ice cream cones at Withycombe Hall creamery.

The Aspitarte children remember it was great fun to be a kid on the OSU campus in the 1950s! They played hide-and-seek in the blackberry bushes where Crop Science and Peavy Halls now stand. They rode bikes, roller

skated and made a racket in the parking lot behind Dryden Hall. Ann remembers a teacher threatening to throw chicken parts at them if they didn't leave the Dryden area during his class!

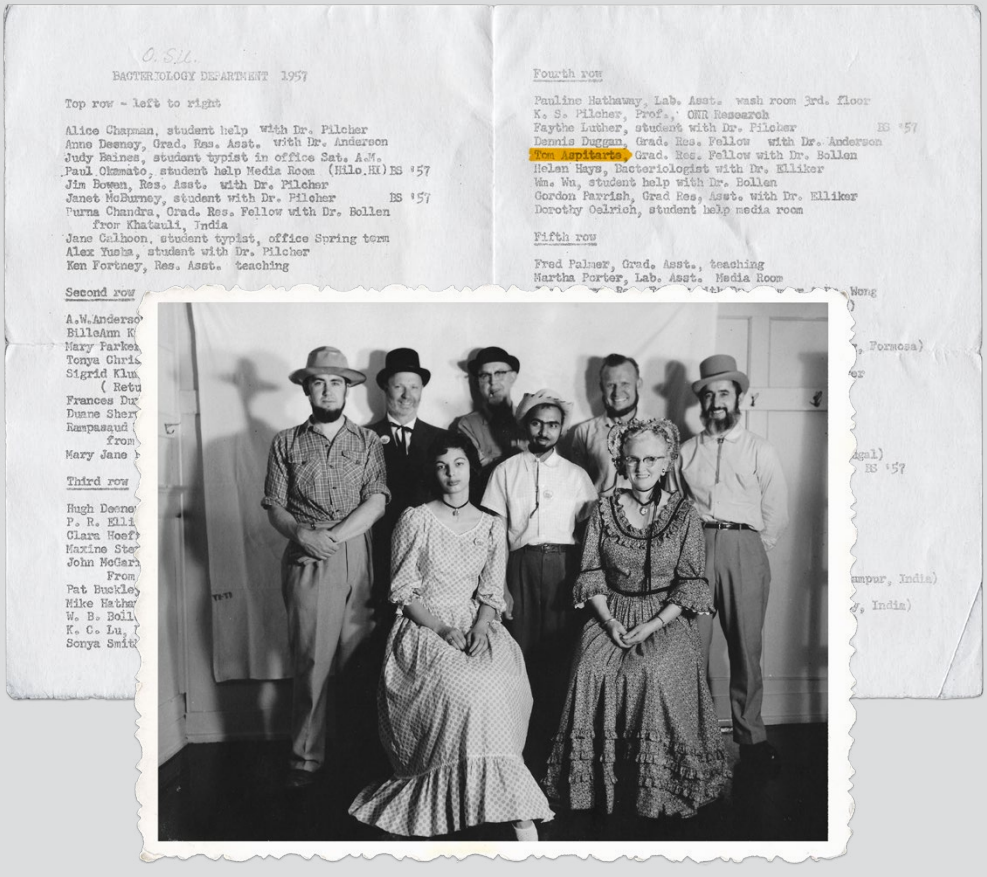
When Aspitarte completed his Ph.D. in 1959, the family moved to La Lima, Honduras for a grand adventure in the tropics. Tom worked for United Fruit Company (Chiquita brand bananas), researching the destructive fungal disease of bananas, Panama Disease.

In 1960, they moved to Camas, Washington where he worked as an environmental microbiologist in the Crown Zellerbach research labs, specializing in pulp and paper mill water, wastewater and solid waste problems. In 1964 another daughter, Cindy, joined the Aspitarte family. He retired after 22 years as manager of the Crown Zellerbach Environmental Services.

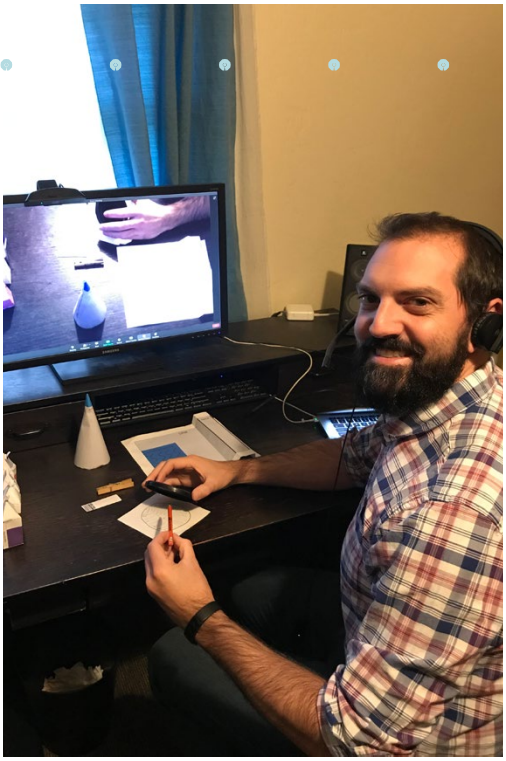
Martha was an active partner in the many moves and raising the family. She fully supported higher education for her children and others. Tom's career was influential on his children: Ann, David and his wife, Joanna, all pursued microbiology degrees. Tom and Martha enjoyed visiting their daughter, Ann, and her family in Corvallis, and were always amazed at how much the town and OSU have grown through the years.

Thomas and Martha's children, Ann (and husband Jon Kimerling), Tom (and wife Rae Hansen), David (and wife Joanna Aspitarte), and Cindy (and husband Mike Mueller) began an endowed scholarship, the Thomas R. and Martha Aspitarte Scholarship, in 1987 in honor of their parents. The scholarship supports undergraduate students studying environmental microbiology. The Aspitarte children regularly attend the Annual Microbiology Scholarship Luncheon.

Daughter Ann Kimerling remembers, "My husband Jon and I moved to Corvallis in 1976 and, in 1988, moved up the street from Dr. Bollen's house on Alta Vista Drive. I remember many visits to the Bollens as children. They had a fantastic garden and orchard on their double lot. Dr. Bollen was generous to his graduate students and allowed them to pick from the garden and orchard."



The Bacteriology Department in pioneer dress as part of OSU's celebrations of Oregon statehood's centennial anniversary in 1958. Other celebrations included a beard-growing contest, in which Thomas Aspitarte participated. Seated in the front row is Joan McMorris Sandeno, the first woman Microbiology graduate (1961). Dr. Bollen is wearing the bowler hat and Aspitarte is wearing the gray top hat.



Supporting student success during a pandemic

Contributed by Kimberly Halsey, Steve Giovannoni, Linda Bruslind, Allison Evans, Shawn Massoni and Alex Beck

What do you do when a virus strikes, all the rules have changed, and you can no longer teach in person? Most of all, how do you make lectures and teaching engaging without the element of personal contact? Our Microbiology professors, instructors and advisors have come up with some unique ways to connect with students during this time of remote instruction. Below are some of the creative ways we are adapting to this temporary new normal.

Associate Professor **Kimberly Halsey**, a sports fan, took a tip from network pre-game strategies. Every lecture this fall in MB 302, she has hosted a microbiologist for an informal interview for 10 minutes before the formal class Zoom session begins. Nothing on these interviews ever makes its way into exams, but that doesn't stop the students from tuning in 10 minutes early. Her guests have included graduate students (Susie Cummings, Sebastian Singleton, Becca Maher), post-doctoral researchers (Chris Suffridge, Veronika Kivenson), and faculty (Sascha Hallett, Andrew Thurber, Si Hong Park, Mahfuz Sarker).

Lauryn Feller, a student in MB 302, said, "Dr. Halsey's Meet a Microbiologist sessions have been eye-opening! Each microbiologist focuses on a different topic, and it is fascinating how many routes you can go. Every day it is something different, and I am so excited to attend these sessions because it opens up a topic that I have not necessarily thought about before."

The most important thing, Halsey has found, is that when the lecture starts, the students are warmed up and ready for more. Her philosophy is, if they are interested and at ease with the remote learning Zoom environment, that lost element of in-person engagement can be recaptured.


Tiffany Bolman


Linda Bruslind


Allison Evans


Kimberly Halsey


Kenton Hokanson


Shawn Massoni

Other microbiology instructors are finding equally engaging and creative ways to engage students remotely this term. Here's what they have to say:

Shawn Massoni, instructor for BHS 323 Microbial Influences on Human Health, holds live forums called Journal Clubs, in which students are the "expert in the room" as they research and present their findings to their peers. "It's a dynamic structure that allows a little bit of everything for the students, who really seem to enjoy it. They really become invested in growing their understanding," said Massoni.

Linda Bruslind, senior instructor for General Microbiology, had to learn to use the new technology quickly when the shutdown started. "Since I had only used Zoom once previously, this was a trial by fire! I haven't been that nervous about teaching a class since I started 23 years ago. Thankfully, the students were very gracious and patient. It was exciting to learn new teaching tools, and to be teaching microbiology at such a relevant time."

On top of their teaching duties, several of our instructors also advise students. This past summer BHS and MB advisors **Alex Beck**, **Linda Bruslind**, **Tiffany Bolman** and **Shawn Massoni** met with more than 200 new BHS/MB majors by phone and Zoom. "We all learned some new skills this summer and look forward to working with this new group of students for their time at OSU," said Bruslind.

What about labs?

General Microbiology Lab instructor **Allison Evans** has learned that creativity is key for teaching labs online as well. Some of the strategies to give students a hands-on experience from home include having students make their own Winogradsky columns and following their development for nine weeks, cooking their own media at home using gelatin and recording video of themselves demonstrating proper aseptic technique with faux paper Bunsen burners and plates.

"We have taken photos of all our possible lab results, including spectrophotometer readings, so that students can make observations as they would in the lab," said Evans. "Although we aren't able to replicate all aspects of the in-lab experience, we are happy to be able to deliver all the elements that students taking the lab in the usual format are able to experience," she added.

Introductory Microbiology is usually a busy, loud and fun lab, so instructor **Kenton Hokanson** and his team have worked hard to capture that spirit in the remote version of the class. Students work together in live virtual simulations and demonstrate fundamental lab techniques using do-it-yourself lab gear. "They even culture microbes from their environment, and use good laboratory techniques to isolate and analyze them," said Hokanson. Pre-recorded lecture videos allow regular class to be a time to practice applying the material, ask questions and apply learnings to global events.

"Our students have shown amazing resilience and adaptability throughout all the changes, and I'm confident we could teleport them into an in-person lab and they'd be running experiments in no time!" said Hokanson.

Education has changed a lot in recent years as teachers have looked for better strategies to keep students interested in learning. Halsey thinks that there's a lot of room for creative approaches. Taking a tip from Sir Charles Barkley and company is just one tool to help deliver premium education.

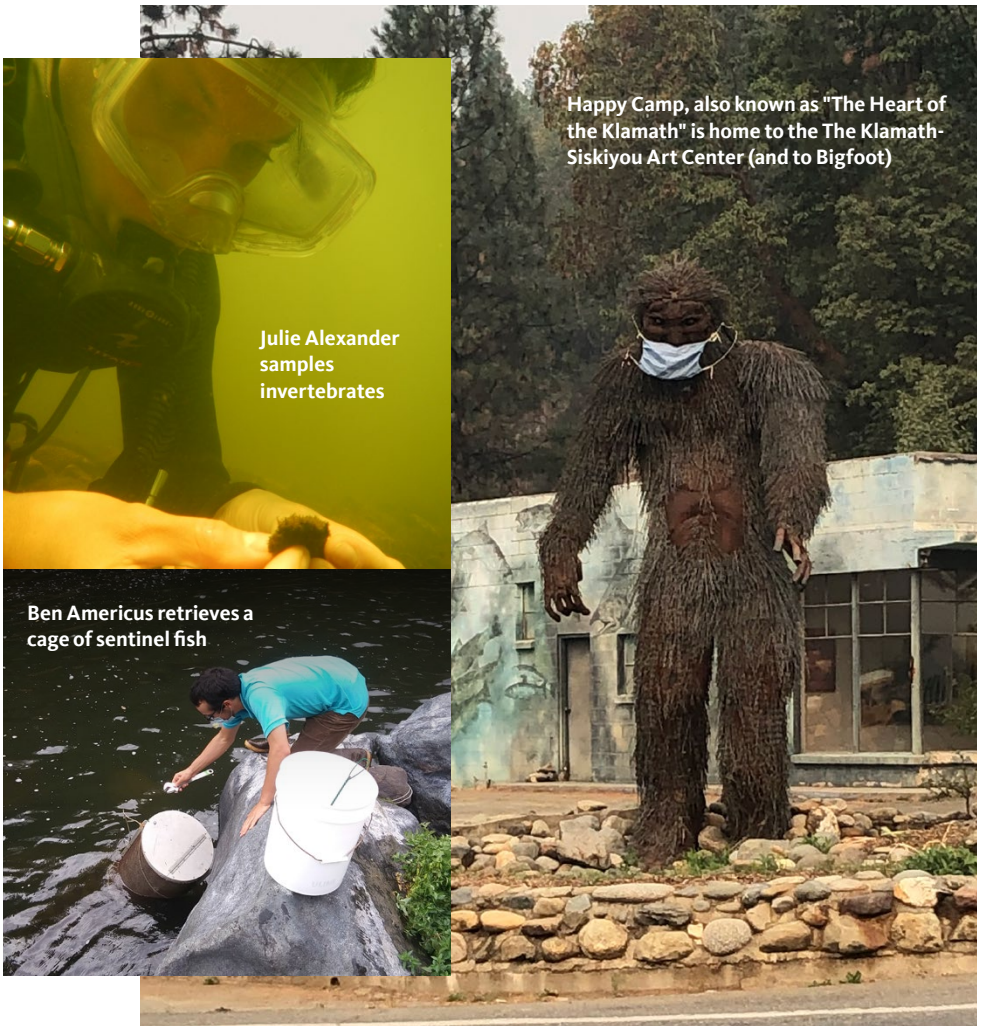
Redefining the "working vacation"

BioHealth Sciences Advisor **Alex Beck** unexpectedly spent the entire Spring Term advising while stuck in pandemic lockdown in Grenada, West Indies, following a vacation there in early March. The first several weeks of the country's lockdown included a 24 hour curfew, with a once-a-week outing permitted to stock up on food – consisting mainly of ramen noodles and canned meats – and water. Beck moved three times during her stay on the island to secure safe and affordable rental housing with running water, electricity and internet access.

Despite these challenges, Beck still managed to participate in all department, College and university meetings and events with only an old cracked iPhone. On top of that, she sent out the BHS newsletter each week and managed to advise hundreds of students via Zoom meetings and emails. Beck finally returned home on June 20 via a flight organized by the U.S. embassy.

Essential salmon disease monitoring in the Klamath River continues through pandemic

Contributed by Sascha Hallett, Stephen Atkinson, Julie Alexander, Ryan Craig and Ben Americus



The **Bartholomew Lab Group** has been conducting salmon disease studies on the Klamath River for over a decade. Spring is always a critical time for the team, as salmon hatch and their parasites increase in abundance. The group's data are part of a long-term research program and underpin regulatory aspects of the 2019 Biological Opinions from USFWS & NMFS for threatened species.

When Governor Brown issued the stay-at-home order on March 23, their field work came to a sudden halt. Unfortunately, a spring disease outbreak was underway in the Klamath River and managers needed OSU's data to inform their decisions. The group applied for special exceptions to continue research, with new restrictions in place to reduce the risk of spreading the coronavirus.

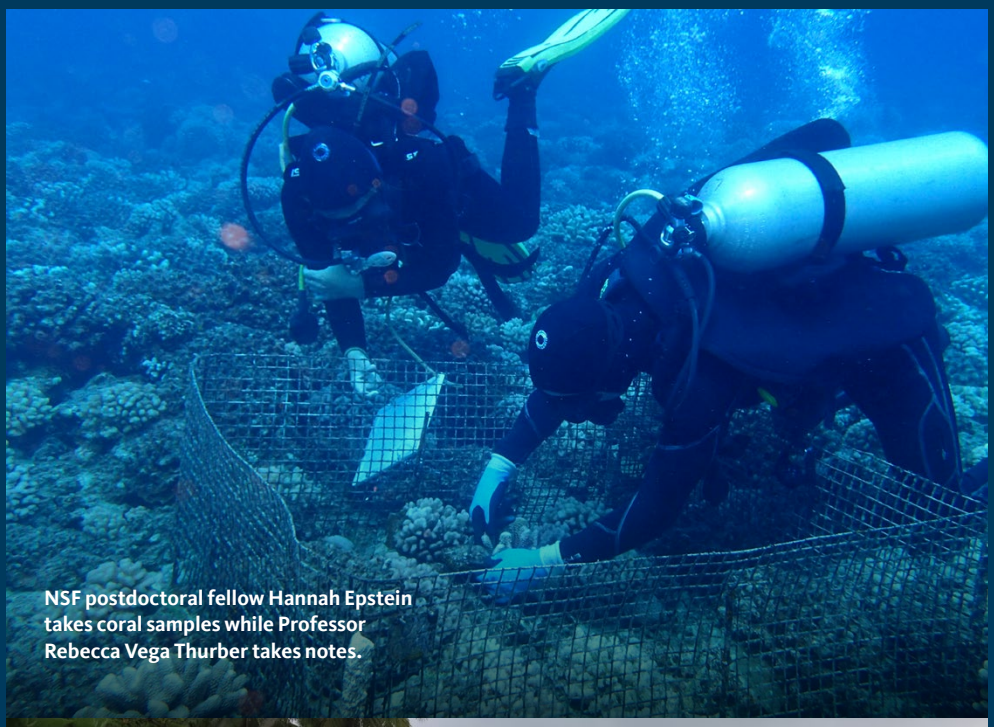
Graduate student **Ben Americus** led a team to conduct sentinel fish exposures and water sampling. Researchers normally have to work in pairs on the river so Ben enlisted his housemates to assist him on several trips to the Klamath River, which covered multiple days and thousands of miles. "They aren't familiar with this work," said Ben, "and their questions have made me think about my role in the fishery and provide better explanations for the research."

Faculty Research Assistant **Ryan Craig** oversees the sentinel fish exposures and water sampling. Weeks into the shutdown, the group received special approval from OSU to take part in emergency dam release monitoring on the Klamath River. "Once OSU gave us approval, we dropped everything and hit the road sporting masks, gloves and hand sanitizer. It was a very eerie feeling to drive on a nearly abandoned I-5," he said. "In the end, I ended up putting around 8,000 miles on the motor pool vehicle."

"Underwater, my field season didn't look much different this year," said Research Associate **Julie Alexander**, whose research focuses on the tiny aquatic invertebrates that release salmon parasites. "However, above the water a new layer of logistical challenges was clear and present." Her group opted to camp for the duration of the study to reduce the risk of transmission by remaining outdoors.

Back in the lab, all the samples need to be analyzed for the salmon parasite. Research Technician **Jamie Graen**, Research Associate **Kristin Kasschau** and Associate Professor **Stephen Atkinson** put in early mornings, late nights and weekend work to ensure only one person was in the lab at a time. Their dedication meant an uninterrupted data flow to the river managers, who made the decision to release extra water from Iron Gate Reservoir, not once but twice.

"We'll know whether those efforts to reduce fish disease were successful only in another three or four years when that cohort of salmon return to their natal river," said Associate Professor **Sascha Hallett**. "Hopefully, research will be back to normal by then!"



NSF postdoctoral fellow Hannah Epstein takes coral samples while Professor Rebecca Vega Thurber takes notes.

Vega Thurber and NSF postdoctoral fellow Kalia Bistolas examine and collect red-footed boobie guano on the atoll of Tetiaroa in French Polynesia.

Collecting guano helps researchers evaluate how bird restoration methods such as invasive rat eradication can increase both land and reef health.

Vega Thurber's team analyzes reef samples to determine how resilient coral microbiomes are to environmental stressors.

For coral crew, social isolation is nothing new

Contributed by Kalia Bistolas and Hannah Epstein

On the other side of the world, OSU coral reef projects on remote islands in the middle of the South Pacific faced similar challenges. The **Vega Thurber Lab** has three ongoing projects on the islands of Mo'orea and Tetiaroa in French Polynesia, 30 miles north of Tahiti.

The COVID-19 pandemic affected field plans in early Spring, when postdoctoral fellows **Kalia Bistolas** and **Hannah Espstein**, along with Associate Professor **Rebecca Vega Thurber**, had to leave French Polynesia with only a few days' notice. Since then, the coronavirus decimated their plans to return, changed the availability of resources and personnel and altered their ability to collaborate with others in the field. The team has kept a close eye on the status of their sites, knowing that any travel would be a calculated risk.

Eventually, delaying fieldwork was no longer an option. In August, the lab finally received permission to travel for a six-week expedition. They submitted to strict quarantines, monitoring and reporting and traveled in a single unit to avoid contact with staff and the local community to prevent the risk of transmission.

"It was like the whole world turned into a biosafety lab," said Bistolas. "At the end of the day, it's not too different from being at home: It's isolated and you're doing science. The only difference is that you've got a stunning view."

Pandemic conditions permitting, they will be heading back to the field soon to continue their research.


Dr. SreyRam Kuy

Alumni and friends

making a difference

Dr. SreyRam Kuy (Microbiology '00) is widely recognized as an international leader in health care policy and management. She was the first woman appointed to be deputy undersecretary for community care in the U.S. Department of Veteran Affairs and in 2019 was one of just 21 healthcare leaders to earn an Aspen Institute Health Innovators Fellowship. Kuy was honored as a 2020 OSU Alumni Association Fellow for her efforts leading through health crises ranging from hurricane devastation and the opioid epidemic to COVID-19.

Along with a major in biohealth sciences, **Jared Eddy** ('19) earned a minor in chemistry and a Medical Humanities Certificate while at OSU. He worked as a TOUR Ambassador and Academic Learning Assistant and volunteered at the Good Samaritan Ambulatory Surgery Center while also working as a scribe at Slocum Orthopedics in Eugene. He will start medical school at the Des Moines University of Medicine in Fall 2021. "I am very excited to start this next step of my journey and am grateful for my experiences at Oregon State that helped pave the way."


Katie McConnell in Chile

Katie McConnell (M.S. MB '19) is a passionate surfer, scuba diver and nature lover. From January through March, she worked as a Wildlands Studies instructor, co-leading 18 students through northern Chilean Patagonia. But after the COVID-19 pandemic struck, she found that her degree in microbiology could be an invaluable asset to the medical field as well. In quarantine in Iquique, Chile, she began volunteering in a COVID-19 diagnostics lab using techniques she learned at OSU.

"After reading in the local newspaper that a university here had received three PCR machines to do COVID-19 diagnostic tests, I immediately started working," she says. She learned how to use PCR to study the ecology of tropical coral microbiomes within a socio-ecological island system. She has used her expertise to help provide testing for thousands of people a day.

Jenna Chamness (BHS '19) has started her second year of a Doctor of Pharmacy program at OSU.

Annual Support of the Microbiology Department

The Honor Roll recognizes the Department's annual supporters who have made outright gifts, pledge payments or new commitments totaling $1,000 or more between July 1, 2019, and June 30, 2020.

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Every attempt has been made to ensure the accuracy of these lists. However, if you notice an error, please contact:
Pam Powell, Associate Director of Stewardship, OSU Foundation, Pam.Powell@osufoundation.org or 541-737-5820.

Basketball star **Mikayla Pivec** (BHS '19) graduated from the Honors College in only three years with a degree in biohealth sciences, and completed a master's in biochemistry and biophysics in 2020. In addition to her academic and basketball success, Pivec is renowned for her compassion and dedication to the community.

While at OSU, Pivec volunteered at the Room at the Inn, a cold-weather women's shelter in Corvallis and used her SURE Science Award in 2018 to advance her thesis project to illuminate challenges homeless people face and how to use resources to help them. Mikayla has been recognized as an Academic All-American and the Pac-12 Scholar Athlete of the Year in women's basketball. She was chosen as the 25th overall draft pick of the WNBA, but has opted to sign overseas with CD Promete in Spain.

Hannah Horton (BHS '19) is enrolled in a physician assistant program at Findlay University in Ohio.

After struggling with serious health setbacks during her time as an undergraduate – including requiring brain surgery! – **Lilian Gharib** (MB '19) is now a microbiologist at Pharmavite, a dietary supplements manufacturer.

Kindel Bailey (MB '19) was an OSU track and field athlete (javelin) while at OSU. She started at OHSU's School of Dentistry in fall 2020.

Nathaniel Buhrkuhl (BHS '18) and **Savannah Correll** (BHS '18) are both in their third year at OSU's Doctor of Pharmacy program.

Whitney Weber (MB '18) started a Ph.D. in OHSU's Biomedical Sciences program this fall. She has published two manuscripts since graduating from Oregon State.

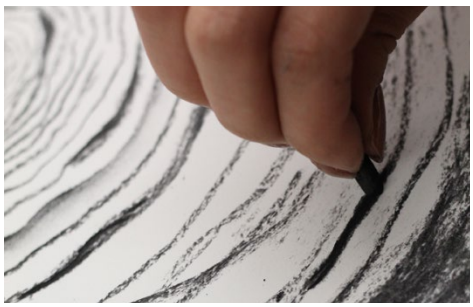
Chelsea Meedom (MB '17) is a clinical microbiologist at Good Samaritan Regional Medical Center in Corvallis.

Devon Holler (MB '17) worked as research assistant at the University of Massachusetts Medical School and has been accepted into OHSU's M.D. program, which commenced fall 2020.

Melinda Guzman (MB '16) earned her master's in Botany and Plant Pathology at OSU in 2020 and is now working on a Ph.D. at the University of Georgia's Department of Plant Pathology.

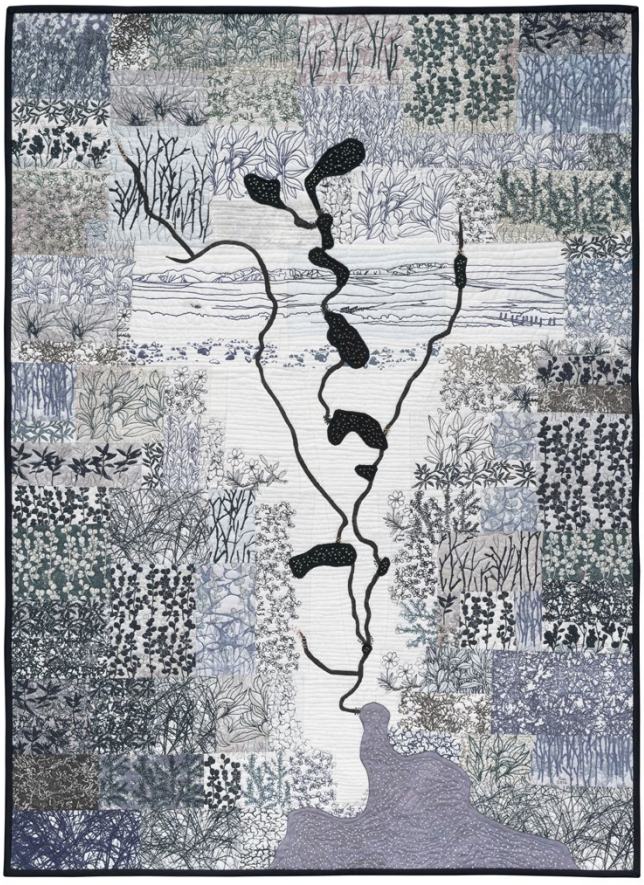
Van Anh Vu (BHS '16) moved to the United States from Norway when she was 11 years old. Born to Vietnamese refugees, her parents instilled a strong work ethic from an early age. As part of her undergraduate studies, she studied global health in Geneva, Switzerland, learning what it meant to be a United Nations pharmacist during the Syrian refugee crisis.

After returning, Vu enrolled in the College of Pharmacy's dual Pharm.D./MBA program where she grew to love direct patient care. Vu was among the 85% of the College of Pharmacy's Class of 2020 who were able to graduate early on May 6 to support the growing charge to fight the global pandemic.



Department news

Above: Dr. Ken Van Rees explores a burned forest in preparation for the Black Carbon exhibit. The exhibition included Van Rees originals (left) and inspired works (right). **Below:** A quilted study of microbes in the Toolik Lake catchment basin by Ree Nancarrow (with microbes by Charlotte Bird).



Beauty in Science: Art-science collaborations yield striking results

Contributed by Jerri Bartholomew and Stephen Atkinson

To foster new artistic collaborations, members of the Department are active in OSU's **ART-SCI Initiative**. This is a trans-disciplinary endeavor to unite faculty who are interested in the intersection of the arts and sciences. Their collaborations have led to a public seminar series, exhibitions, novel MB courses and the formation of a student-led club, Seminarium, which explores and celebrates the intersection of art and science. Faculty Jerri Bartholomew and Stephen Atkinson, along with Andrew Myers from the School of Arts & Communication, serve as mentors. This year, Seminarium hosted two exhibitions, funded through the Pernot Distinguished Professorship awarded to Bartholomew in 2015.

One of the exhibitions was from Ken Van Rees, director of the Centre for Northern Agroforestry and Afforestation at the University of Saskatchewan. In November 2019, he presented a public seminar at OSU entitled The Collision of Science and Art: Paint, Soil and Charcoal, in which he shared his work as a forest soil scientist and visual artist. "This merging of different disciplines seems to be more of a collision when the two meet to express themselves in unexpected ways," he explained. An exhibition of his work, called Black Carbon, in the Strand Gallery showcased his exploration of all the dimensions of a burned forest. The exhibition also included Van Rees-inspired work created by Seminarium members and students from multiple departments.

The second exhibition, "In a Time of Change: Microbial Worlds," explored the hidden world of microscopic organisms in the arctic tundra, magnified by the work

of fourteen artists and writers. It was organized by Mary Beth Leigh, professor of microbiology at University of Alaska-Fairbanks, and curated by Bartholomew and Helen Wilhelm, curator of the Little Gallery in Kidder Hall.

Committing to our values

"Now, more than ever, we need to have an earnest conversation about justice and equity."

The **Microbiology Department Core Values Committee** wrote these words in a public statement on behalf of the department in July 2020. In the wake of the loss of Black lives at the hands of law enforcement, and in the middle of an ongoing pandemic that has disproportionately affected Black, Latinx, Native American and low-income families, it is more apparent than ever that justice and equity cannot be achieved without the commitment of all people, not just those who are most affected by injustice.

Academia has long upheld standards of white supremacy and disenfranchised those from historically underrepresented groups. STEM fields, especially, must reckon with our racist, sexist, and ableist past and present. It is therefore critical for universities and departments to recognize their role in upholding these systems and actively promote a more just society. These ideas led to the formation of the Core Values Committee in January 2019, with the aim of guiding the department of microbiology in making a more inclusive and equitable space to learn, perform research, teach and grow, for all members of our community.

The Core Values Committee mission states: "By encouraging compassion, opening dialogue and uplifting voices, we seek to bring visibility to sources of inequity and make lasting, adaptive changes to combat them."

Microbiology team Moscow Muells at the annual School of Life Sciences' OSU Food Drive Pub Trivia event

As a first step towards this goal, the committee coordinated with the Office of Institutional Diversity to host a workshop in January 2020 on creating a community and facilitating effective dialogue. A second workshop with OID is in the works, which will be announced soon. The committee is also planning an external workshop facilitated by women of color, which will be tailored to the microbiology department's specific needs in moving forward with diversity, equity and inclusion initiatives. There's a lot of work ahead of us, but the Core Values Committee is confident that the Department can achieve a more just and equitable community.

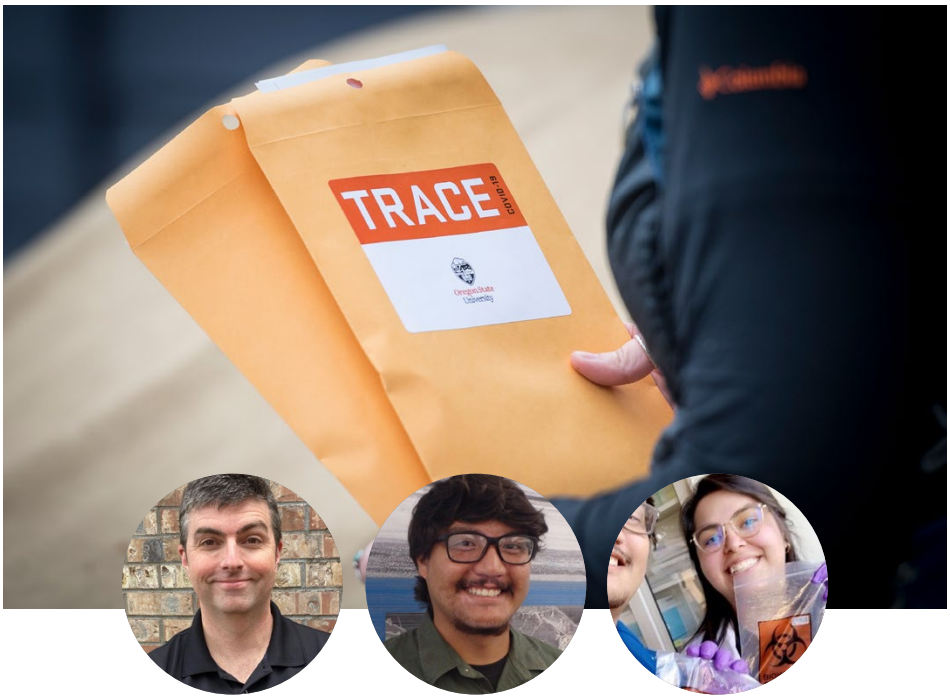
Other department news

Microbiology junior **Sarah Olson Michel** was featured in a segment with Ira Flatow on NPR's Science Friday discussing her top science book picks for the summer. She has written for Science magazine's Books, et al. column, PLOS SciComm, leaspmag, and The Particle on Medium. Sarah works in microbiology professor Steve Giovannoni's High Throughput Culturing Laboratory on outreach related to OSU's SMILE program.

Thomas Sharpton leads the Department's colloquium series, which invites speakers from across the nation to discuss their work with department members. One speaker this past year was Dr. Kat Milligan-Myhre, an Alaskan native and first generation scientist. Milligan-Myhre studies how the gut microbiome varies among populations of stickleback. During her visit to OSU, Milligan-Myhre spoke to students about her experiences traversing academia as a native Alaskan.

Sharpton and **Maude David** co-led a two-day Microbiome Data Analytics Boot Camp last summer, in collaboration with Columbia's School of Public Health, which provided a rigorous introduction to the design, generation and analysis of microbial communities. Several members of the David and Sharpton Labs and the Center for Genome Research and Biocomputing helped to plan and deliver the workshop, which will be offered every summer for the foreseeable future.

One highlight of the annual School of Life Sciences' OSU Food Drive is the **Pub Trivia** event held in February. Together with a silent auction, the MSA Bake Sale and some generous donations and raffle tickets, the event raised more than $3,100 for the Linn Benton Food Share.



Justin Sanders

Corbin Schuster

Elizanette Lopez

Stepping up in a time of crisis

Microbiology staff and students volunteer during a pandemic

Going door to door

Justin Sanders (Microbiology Ph.D. '13) is an assistant professor in the Carlson College of Veterinary Medicine, whose role in diagnostic testing for COVID-19 has attracted international attention. Since March, Sander's lab has produced a specific viral transport medium needed for COVID-19 testing, increasing testing capacity in the area by approximately 1,000 tests a week. He is a leader in OSU's Team-based Rapid Assessment of Community Level Coronavirus Epidemics, or TRACE-COVID-19 project, which has helped provide testing for the Corvallis community as well as communities around Oregon.

This past spring and summer, graduate students **Corbin Schuster** and **Elizanette Lopez** helped the TRACE team check in samples and deliver them to the lab to be processed. They traveled to several Oregon communities including Corvallis, Bend, Newport and Hermiston to assist with sampling. Each community presented its own set of challenges, but Schuster shared that "one thing that was always key to our success was the ability to safely engage with the community and encourage them to participate. Not many will say 'no' to a free COVID test when it knocks on their door!" He added, "This experience has been a very unique and fulfilling project."

Have no fear: Cindy's here

Cindy Fisher, building manager for Nash Hall, home of the microbiology department, was honored as an OSU "unsung hero" this spring for her efforts to help the building and its 30 labs and auxiliary spaces run smoothly after the stay-at-home order in March. Nash Hall houses decades' worth of samples and rare specimens in dozens of sub-80-degree freezers. OSU researchers know only too well the importance of these frozen cultures, and what losing them could cost.

Fisher, who has worked as OSU for 39 years, painstakingly visited every lab once a day to ensure that the freezers were still running. "I do this not for the building itself, but for the people who are here now, and the memories of the amazing individuals who have walked these halls over the years," she said.

She also led the charge to collect Microbiology's contribution to the campus-wide PPE donation to local health workers, collecting more than 1,000 N-95 masks, disposable gloves and other equipment from their offices. Thank you, Cindy!

Stay at home hero

Ruth Milston-Clements, faculty manager for the John L. Fryer Aquatic Animal Health Laboratory was honored as a College of Agricultural Sciences Stay at Home Hero.

Since the research restrictions imposed as a result of the pandemic, Ruth has been on call at all hours to ensure the health and safety of the animals. She has also worked with students, faculty and industry users to guarantee that critical animal research could continue. This involved developing protocols for fish research, implementing work schedules that minimize overlap of users in the laboratory and assisting users with animal care needs.

Ruth worked tirelessly in pre-pandemic times, and now we rely on her more than ever. Thank you, Ruth!

Lending a helping glove

Once Governor Brown issued the stay-at-home order in March, the last thing many members of the department did before vacating Nash Hall was to gather all available PPE in their labs to donate to local healthcare workers. Along with gloves, gowns, and safety goggles, Microbiology donated 2,000 masks and 14,900 pairs of gloves!

Stay at home hero Ruth Milston-Clements in the John L. Fryer Aquatic Animal Health Lab

Technician Jamie Graen collects PPE for donation

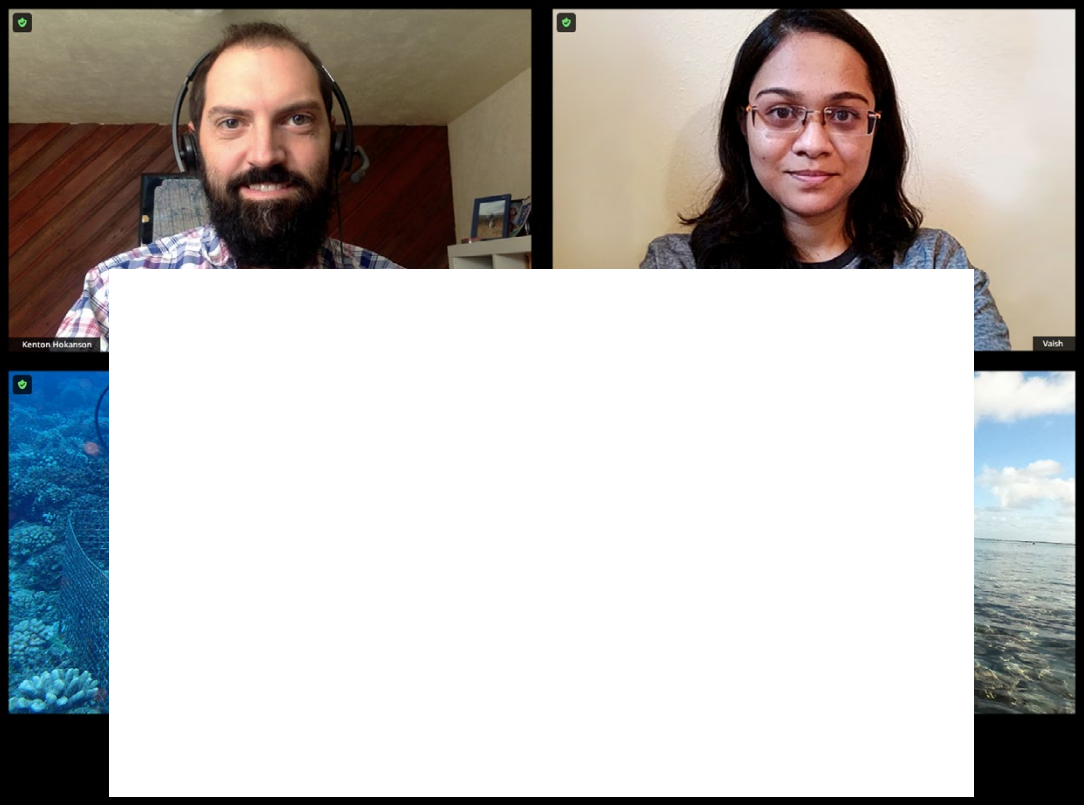
Sascha Hallett in a Val Elias custom mask

Custom face masks

As a microbiologist and faculty research assistant, **Val Elias** usually prepares reagents and cell cultures for laboratory classes. But when all in-person labs were cancelled Spring term and the university adopted a mandatory face covering policy, Elias turned her efforts to sewing custom face masks – replete with pleats, elastic ear loops and a filter pocket. Department members were offered a choice among five appropriately Beaver- and microbiology-themed materials; the most popular choice being the blue DNA and test tube design. Elias sewed 79 masks over 3-4 weeks before returning to her usual tasks. “I underestimated the demand for the masks, so much of that time was spent waiting for more supplies to arrive!”

Oregon State University

Department of Microbiology
Oregon State University
226 Nash Hall
Corvallis, OR 97331



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