

## One Health Day Student Event Submission Checklist

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See Student Competition Guidelines on the One Health Day webpages of the One Health Commission (<http://bit.ly/2MtDaxy>) or One Health Platform (<http://bit.ly/2WWOwj9>)

One Health Day encourages students (secondary, undergraduate, graduate, professional) to set up One Health events that facilitate student delegates working together from different academic disciplines/backgrounds. Student teams organizing an event for One Health Day may, if desired, enter their event to compete for cash prizes to the top event in each of four global regions.

### Eligibility

- Must have at least one ecology / environmental, one human medical, one veterinary medical, and one additional non-medical related student (examples: Anthropology, Chemistry, Communications, Engineering, Social Sciences, Wildlife, Zoology, etc.) N=4 or more students. Team members can cross institutional and geographic (e.g., country) boundaries
- Submit proof of 'students in good standing' letters or Student Registration documentation for each team member on their University's letterhead from a faculty member or Department Head. (Note: It is possible that more than one University will be represented on a single team.) (Due AFTER event)
- [Register your Event](#) to compete (at least 2 WEEKS BEFORE event).
- Hold competing student event between September 1 and November 30 (non-competing events can happen and be registered any time of the year)
- By December 1 submit an evaluation Summary Report (in English) to Christel Smeys ([c.smeys@onehealthplatform.com](mailto:c.smeys@onehealthplatform.com)) with a copy to Cheryl Stroud ([cstroud@onehealthcommission.org](mailto:cstroud@onehealthcommission.org)).
- Submission must include this Checklist and the **Declaration of Student Event Design and Domain** Form with student names, domains, rolls/responsibilities for the event and signatures declaring that the event was conceived of and led by students.

**Title of your Event:** Sixth Annual One Health Symposium;  
Interfaces: One Health at Borders and Margins

**Location:** UC Davis School of Medicine, 4610 X Street, Sacramento, CA 95817

**Who is the designated Point of Contact for this team?** Laura Shultz ([lcshultz@ucdavis.edu](mailto:lcshultz@ucdavis.edu))

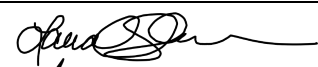

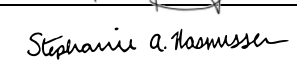
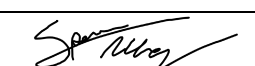
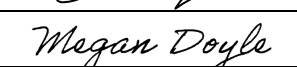

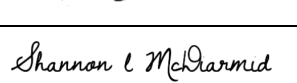
**Assessment / Evaluation Criteria:** Be sure to review and closely follow [these Assessment Criteria](#) by which your event will be evaluated. Use this Checklist as an outline for preparing your Narrative Summary. For a possible 65 points, does your Narrative Summary include?

1. **Event Concept** – Why is it needed in your region / location? (5 points each for 20 points)
  - Event Description- clear, concise
  - Relevance to the objectives of One Health Day, i.e. to stimulate collaborations across professional communities and create public awareness of the need for a One Health approach.
  - Innovation of Event Concept
  - Relevance of the Event to the ‘targeted audience’: age groups, audience backgrounds, abilities, skills
2. **Event Objectives** (3 points each for a total 15 points, will be scored using the following SMART criteria)
  - Specific
  - Measurable (Metrics)
  - Achievable
  - Realistic
  - Time-Specific
3. **Promotional Plan** (5 points each for 10 points)
  - How many people did your event reach? (Judged not on how many you reached but on your noting the facts)
  - To what extent did your event inform people who knew nothing about One Health or change the minds of people who had some understanding of it?  
Note: Be sure to:
    - Include a report of what local media promotions occurred for your event
    - Advertise your event widely by posting articles, blog posts, pictures, and/or video recordings online
      - a. on the One Health Day [Facebook page](#)
      - b. on [Twitter](#) using #OneHealthDay.
4. **Implementation Review (20 points)**
  - Metrics for measuring success must be outlined before the event
  - Results / data for those metrics are recorded and reported in the narrative summary
  - Immediate Impact based on event objectives and their measurement: describe the contribution of your event to the Advancement of One Health
  - Did you meet your original objectives?
  - If not, why not?
  - Did you encounter unexpected barriers / hurdles?
  - How did you overcome the hurdles?
  - What would you do differently next time, and why?

## Declaration of Student Event Design and Domain

I, the undersigned, hereby declare that our submitted One Health Day Student Event was conceived, designed, planned, implemented and managed by myself and my fellow student teammates. While we may have occasionally consulted with Faculty and/or Administration, especially for financial support, this project is student driven. I declare that there was no Faculty or Administration participation or assistance in either the design, implementation or management of the event, leading to or during the event. I declare that the submitted Event Competition Summary was prepared by myself and/or my fellow student teammates. I acknowledge that, should it be determined that the project was actually led by Faculty or Administration, my/our team will be disqualified from the One Health Day Student Event Competition. (Real signatures please)

Signed,

Name	Discipline / OH Domain Represented	My Role in the Event	Letter Student Good Standing	Email address	Signature
Laura Shultz	Veterinary Medical	Co-Lead Coordinator	Yes	<a href="mailto:lcshultz@ucdavis.edu">lcshultz@ucdavis.edu</a>	
Stacy Kim	Veterinary Medical	Co-Lead Coordinator	Yes	<a href="mailto:sthkim@ucdavis.edu">sthkim@ucdavis.edu</a>	
Tyler Barzee	Non-Medical (Engineering)	Panel Moderator and Breakout Lead	Yes	<a href="mailto:tjbarzee@ucdavis.edu">tjbarzee@ucdavis.edu</a>	
Stephanie Rasmussen	Human Medical	Panel Moderator and Breakout Lead	Yes	<a href="mailto:sarasmussen@ucdavis.edu">sarasmussen@ucdavis.edu</a>	
Spencer May	Human Medical	Breakout Lead	Yes	<a href="mailto:slmay@ucdavis.edu">slmay@ucdavis.edu</a>	
Megan M Doyle	Ecology/Environmental	Breakout Lead	Yes	<a href="mailto:mmdoyle@ucdavis.edu">mmdoyle@ucdavis.edu</a>	
Brooke Genovese	Non-Medical (Integrative Pathobiology)	Committee Member	Yes	<a href="mailto:bgenovese@ucdavis.edu">bgenovese@ucdavis.edu</a>	
Shannon McDiarmid	Veterinary Medical	Member/Incoming 2020 Lead	Yes	<a href="mailto:slmcdiarmid@ucdavis.edu">slmcdiarmid@ucdavis.edu</a>	

STUDENTS FOR ONE HEALTH & UC DAVIS ONE HEALTH INSTITUTE PRESENT THE  
6<sup>TH</sup> ANNUAL ONE HEALTH SYMPOSIUM

# INTERFACES



**SATURDAY, NOVEMBER 2**  
**9:00AM - 5:00PM**  
UC Davis School of Medicine  
4610 X Street, Sacramento

**2019 Calvin Schwabe Lectureship Speaker**  
Christine Kreuder Johnson, BS, VMD, MPVM, PhD  
Professor, UC Davis School of Veterinary Medicine



For tickets & more information visit: [www.onehealth.institute](http://www.onehealth.institute)



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# INTRODUCTION

## Our University

The University of California, Davis (UC Davis) is a major public research university in northern California that started as the University Farm School in 1908. Since its inception, UC Davis paved the way for agriculture and veterinary medicine research and education, eventually expanding to become a general campus a few decades later. It has a long history of tackling problems related to food, health, the environment and society.

UC Davis houses colleges of Agricultural and Environmental Sciences, Biological Sciences, Engineering, and Letters and Science as well as a Graduate Studies School that includes more than 90 programs, many of which are interdisciplinary. Additionally, it is home to the following professional programs:

- The Betty Irene Moore School of Nursing
- Graduate School of Management
- School of Education
- School of Law
- School of Medicine
- School of Veterinary Medicine

Having this array of disciplines on one campus provides an environment that fosters collaboration; it allows students and professionals to work across fields to address complex problems. UC Davis educates the next generation of leaders in all aspects of One Health--those studying veterinary medicine, human medicine, environmental health, engineering, law, and several other fields who all unite towards their common purpose of improving the health of humans, animals, plants, and the environment.



On this year's planning committee for the 6th Annual One Health Symposium, we embraced the academic diversity of the university by including student representatives from the School of Veterinary Medicine, School of Medicine, Graduate Group in Ecology, Graduate Group in Integrative Pathobiology, and Department of Biological and Agricultural Engineering. The speakers and breakout session facilitators also represented a wide breadth of academic and professional fields including: Social Sciences, Engineering, Veterinary Medicine, Public Health, Human Medicine, and Ecology. The diversity of perspectives brought to this year's Symposium celebrated the spirit of One Health and was a key factor in the creation of, by several measures of the event's reach, the most successful One Health Symposium hosted by UC Davis so far.

## The Organizations Involved

### Students for One Health (SOH)

SOH is a Student American Veterinary Medical Association (SAVMA) recognized student club for veterinary students in the UC Davis School of Veterinary Medicine. The goal of our organization is to offer valuable training and field experience rooted in the One Health Approach as well as leadership and mentorship opportunities. This is accomplished through several projects and events throughout the year exploring different aspects of One Health on a local, national, and global scale.

The Students for One Health club acts as the lead student organizers for the annual One Health Symposium. Each year, SOH board members partner with students from many campus disciplines and work together to create a daylong symposium bringing together students and professionals in veterinary, medical, environmental, engineering, and other disciplines. Each year focuses on a different theme; this year, the theme was "Interfaces: One Health at Borders and Margins" for the 6th Annual One Health Symposium, held for the first time on the UC Davis School of Medicine Campus in the heart of Sacramento. Previous themes have included "Collaboration in the Face of a Changing Environment," "Resilient Solutions for Growing Populations," and "Water is Life."

Examples of other projects that are accomplished by the Students for One Health include a monthly One Health Clinic (Knights Landing One Health Center), international and local projects through Models of One Health Solutions in Action in Communities (MOSAIC), a One Health Podcast (in production), public health oriented events, and a seminar series.



*From left to right: Veterinary students practicing biosecurity measures at the 2019 Outbreak Scenario; veterinary students and a veterinarian playing Pandemic at a Pandemic Night event. These are some examples of other One Health oriented events put on by SOH each year.*

## One Health Interest Group

Medical students formed the One Health Interest Group at UC Davis School of Medicine; its mission is to promote the One Health approach in human medicine, and to partner with student-colleagues from other professional and academic graduate programs to provide educational and research opportunities for graduate students.

## One Health Institute

The One Health Institute (OHI) at UC Davis was formed out of the School of Veterinary Medicine's mission to expand its One Health efforts and initiate interdisciplinary collaborations on projects all over the world. It is home to many programs, initiatives and Centers, including the well-established Karen C. Drayer Wildlife Health Center. Leaders of the OHI are actively working on increasing One Health recognition and policies throughout the UC Davis campus, the UC System, State and Federal Agencies, and globally.



*From left to right: Staff and Visiting Scholars from Myanmar at the OHI Lab; PREDICT Project in Cambodia to detect the emergence of viruses with pandemic potential; Rx One Health Course in Tanzania, bringing students and faculty from multiple disciplines to address One Health topics.*

## Center for Continuing Professional Education

The UC Davis Center for Continuing Professional Education (CPE) offers continuing education credit to veterinary practitioners approved by the California Veterinary Medical Board in cooperation with University Extension. The CPE often partners with student organizations to offer collaborative events where students and professionals can network as they explore different topics in veterinary medicine. The partnership with the CPE allowed the One Health Symposium to offer valuable continuing education credits to practicing veterinarians in the region and was instrumental in expanding the Symposium's reach beyond the university.

## Our Team



**Laura Shultz** (*Primary Contact*)  
DVM/MPVM Dual-Degree Candidate  
Email: [lcshultz@ucdavis.edu](mailto:lcshultz@ucdavis.edu)

Laura is a second-year veterinary student who is also pursuing a Masters in Preventive Veterinary Medicine. She currently serves as a Co-President for the Students for One Health Club in the veterinary school. Her career goal is to address problems at the wildlife-human interface via governmental or academic positions. Specifically, her research investigates ectoparasite vectors utilizing wildlife hosts with spillover potential into urban communities.



**Stacy Kim**  
DVM Candidate  
Email: [sthkim@ucdavis.edu](mailto:sthkim@ucdavis.edu)

Stacy is a second-year veterinary student and is interested in a career as an aquaculture specialist. She hopes to continue her work in One Health by working on research that focuses on issues of global food security, conservation and economic development. In addition, she is a Global Education for All Fellow at UC Davis and is passionate about providing opportunities for students to increase their cultural awareness.



### Tyler Barzee

PhD Candidate - Biological Systems Engineering

Email: [tjbarzee@ucdavis.edu](mailto:tjbarzee@ucdavis.edu)

Tyler is a PhD Candidate in Biological Systems Engineering with an emphasis in Bioenvironmental Engineering. He is passionate about engineering education, sustainable development, and interdisciplinary planetary health solutions (e.g. One Health). He is in the final stage of my doctoral degree at UC Davis and his future goal is to become a faculty researcher and educator.



### Stephanie Rasmussen

MD Candidate

Email: [sarasmussen@ucdavis.edu](mailto:sarasmussen@ucdavis.edu)

Stephanie Rasmussen is a second-year medical student at UC Davis School of Medicine. She volunteers at the Joan Viteri Memorial Student Clinic, where she helps provide free healthcare to people in Oak Park, Sacramento. She is the treasurer of the One Health Club at the medical school. She is pursuing an MD with an interest in infectious diseases.



### Spencer May

MD Candidate

Email: [slmay@ucdavis.edu](mailto:slmay@ucdavis.edu)

Spencer May is a second-year medical student at UC Davis School of Medicine. He is currently a Co-Director of the Knight's Landing One Health Student Clinic, the Co-President of the One Health Club at the medical school, and a student in UC Davis's Rural Health Track program. He is pursuing an MD with an interest in the impacts of Climate Change and immigration on human and animal health.



### Megan Doyle

PhD Student - Ecology

Email: [mmdoyle@ucdavis.edu](mailto:mmdoyle@ucdavis.edu)

Megan is a second year PhD student in the Graduate Group of Ecology and a student researcher in the One Health Institute's EpiCenter for Disease Dynamics. Her research is focused on understanding the ecological conditions that lead to the emergence and re-emergence of zoonotic diseases. Her PhD research will investigate viral transmission dynamics in bats along with the anthropogenic activities that influence risk of spillover of zoonotic viruses from bats to humans.



### Brooke Genovese

PhD Student - Integrative Pathobiology

Email: [bgenovese@ucdavis.edu](mailto:bgenovese@ucdavis.edu)

Brooke is a first year PhD student in the Integrative Pathobiology Graduate Group and a student researcher for the One Health Institute. Her research interests include the ecoimmunology of bat-borne viruses and vaccine development for high-consequence zoonotic pathogens. It is her hope that by approaching complex health issues with an interdisciplinary approach, we can foster collaborative science to end the pandemic era.



### Shannon McDiarmid

DVM Candidate

Email: [slmcdiarmid@ucdavis.edu](mailto:slmcdiarmid@ucdavis.edu)

Shannon is a first-year veterinary student pursuing a career in One Health. Her interests include aquatics, wildlife and livestock medicine. Shannon is passionate about working at the human/animal interface and has worked for over 15 years in food systems through her work as a sustainable fisheries specialist, livestock student veterinary technician at CSU, and Commissioned Officer in the USPHS. She also has an MBA and an MA in International Environmental Policy from the Middlebury Institute of International Studies at Monterey.

# EVENT CONCEPT & DESCRIPTION

## Concept

The overall goal of the annual One Health Symposium is to bring together students and professionals from a wide variety of disciplines related to human, animal, planet and environmental health to network and foster interactive discussions that push forward solutions to complex problems utilizing an interdisciplinary, One Health approach. With the wide array of fields that UC Davis houses, it is a perfect location to promote the One Health concept, taking advantage of the diverse student body of the university. This goal was accomplished in this year's symposium by the inclusion of Question and Answer panels, breakout sessions, networking, and poster presentations. This year was the 6th Annual UC Davis One Health Symposium and the theme was "Interfaces: One Health at Borders and Margins."

An interface is defined as "a point where two systems, subjects, organizations, etc. meet and interact" (Oxford Dictionary). This theme ties to the very crux of the One Health approach; utilizing experts from multiple fields to work collaboratively towards solutions to complex problems. Within the theme of "Interfaces: One Health on Borders and Margins," each facet of the symposium focused on One Health topics impacting various interfaces such as those relating to the growing divides between cities and countrysides (Urban-Rural Interface); human-defined and arbitrary boundaries (Political Borders), land and water bodies (Coastal Borders); and differences in human's relationships with animals, the environment, and each other (Cultural Interfaces). Discussing and exploring the unique characteristics of these interfaces, borders, and margins served as not only a way to explore One Health solutions, but also as a platform to allow students and professionals from across academic delineations to interface with one another.

## Description

The 6th Annual One Health Symposium was organized by students from the UC Davis School of Veterinary Medicine's Students for One Health Club, the UC Davis School of Medicine's One Health Interest Group, and graduate students associated with the One Health Institute from multiple disciplines. Faculty from the One Health Institute and staff from the Center for Continuing Professional Education offered valuable insights and made offering continuing education credit to practicing veterinarians in attendance possible; however, students were the main organizers of this event and coordinated all efforts.

This day-long event was held at the UC Davis School of Medicine Education Building in Sacramento, California on November 2, 2019 and brought together professionals, faculty and students from a variety of backgrounds. We had multiple lectures at the beginning and end of the day from One Health leaders, but the majority of the symposium consisted of two panels and three concurrent breakout sessions. Following closing remarks from the deans of the veterinary and human medical schools, there was a reception and poster session that featured One Health research conducted by UC Davis graduate students and a bone exchange event hosted by the Students for One Health Club and the One Health Interest Group.

The following sections feature a more detailed description of the events that were held during the symposium.

## Welcome

The day started off with breakfast and a warm welcome from the Chancellor of UC Davis, Gary S. May, highlighting his dedication to increasing One Health initiatives on campus, including the construction of “Aggie Square”, an innovation center based in Sacramento that will facilitate One Health collaborations across disciplines. Chancellor May emphasized his vision for UC Davis to continue as a global leader in One Health research and outreach and emphasized his support and enthusiasm for the student led Annual One Health Symposium. He was excited to meet the students that organized this symposium and was even more excited to receive some One Health “swag”!



*UC Davis Chancellor Gary May providing the Symposium's Opening Remarks*

Following Chancellor May's opening remarks, One Health leader Dr. Tracey Goldstein (UC Davis Professor, Interim Director of the One Health Institute, Director of the OHI Laboratory, and Lab Director of the PREDICT Project) introduced each of the morning's speakers, beginning first with the day's Keynote Speaker, Dr. Christine Kreuder Johnson.

### Keynote Calvin Schwabe Lectureship: One Health at the Interface of Environmental Change and Global Health Security

Dr. Christine Kreuder Johnson gave the symposium's keynote speech. The keynote speech is named the Calvin Schwabe Lectureship in commemoration of the legacy of Dr. Calvin Schwabe, a pioneer for One Health at the UC Davis School of Veterinary Medicine who is known as the "Father of Modern Epidemiology." Each year, the planning committee selects one speaker who embodies the same drive and passion for One Health as Dr. Schwabe. Dr. Kreuder Johnson was chosen based on her many contributions to One Health education, research and mentorship. She is a Professor of Epidemiology and Ecosystem Health at UC Davis and serves as an Associate Director for the One Health Institute and the Director of the EpiCenter for Disease Dynamics. In addition, she was the Surveillance Coordinator of USAID's Emerging Pandemic Threats PREDICT Project, which is an international collaboration designed to detect disease spillover, amplification, and spread to inform risk mitigation strategies. Her lectureship focused on global trends that have negative impacts on One Health, such as climate change, population growth, increased urbanization, biodiversity loss, and more. She also elaborated on the greatest learning outcomes from the PREDICT Project, which concluded earlier this year. Dr. Kreuder Johnson's lecture highlighted the interfaces that served as the topics for the remainder of the Symposium and served as a perfect introduction to these issues for the attendees.



*Keynote (Calvin Schwabe Lectureship) Speaker Dr. Christine Kreuder Johnson*

## Remarks from Drs. Wilkes and Wun

Dr. Michael Wilkes welcomed the attendees to the medical school campus, which served as the host of the One Health Symposium for the first time. During the symposium planning process, he served as the main faculty liaison from the UC Davis School of Medicine. He is a former Vice Dean and has spearheaded several efforts to improve the medical school curriculum, such as the creation of the Rural Prime Program and the introduction of the “Doctoring” curriculum to help students improve their patient communication skills by including public health and social sciences as part of their training. He now serves as the Director of Global Health and engages locally with faculty from the UC Davis School of Veterinary Medicine and School of Nursing, as well as internationally with medical and health sciences institutions to train health providers in addressing local health needs.

Following Dr. Wilkes was Dr. Ted Wun, the Interim Vice Dean for Research for the UC Davis School of Medicine, the Associate Dean for Research for the School of Medicine, the Director and Principal Investigator of the UC Davis Clinical and Translational Science Center (CTSC), and Chief of Hematology and Oncology for UC Davis Health. Our symposium received sponsorship from the CTSC and Dr. Wun elaborated on the importance of expanding One Health initiatives and how they overlap with the CTSC’s mission to support collaborative biomedical research projects that aim to improve health care outcomes.



*Dr. Michael Wilkes welcoming the audience to the first One Health Symposium to be held on the UC Davis School of Medicine campus.*

After the introductory remarks and Calvin Schwabe lectureship, the symposium featured two panel session and three concurrent breakout sessions that each focused on a unique facet of the theme of “Interfaces”. The format of the sessions included introductory panelists remarks followed by a round-table style panel discussion led by a student-moderator. Each panelist had 10 minutes to speak on their work and research followed up by an individual 5-minute Q&A session to help familiarize the audience with their background. Following the speaker introductions was an hour-long Q&A where the panelists discussed with the audience and each other about topics related to each panel’s theme. The conversation was initiated with prepared questions from the student moderators and then transitioned to audience questions submitted via note cards.

### Panel 1: Health Across the Urban-Rural Interface

The first panel brought together experts of Environmental Science, Veterinary Pathology, Disease Ecology, and Agricultural Engineering to discuss emerging issues and solutions at the interface of the world’s countrysides and cities. This panel was moderated by Stephanie Rasmussen, an MD candidate at the UC Davis School of Medicine (see “Our Team” section).

Speakers for this panel included:

- Dr. Peter Freer-Smith, an Adjunct Professor in the UC Davis Department of Environmental Science and Policy and Co-Chair of the IUFRO Task Force “Sustainable Planted Forests for a Greener Future” whose research focuses on the effects of air pollution on ecosystems and crops and the benefits of urban greenspaces to air quality and temperature in cities.
- Dr. Kevin Keel, a veterinary pathologist for the UC Davis Veterinary Medical Teaching Hospital and Associate Professor in the Department of Pathology, Microbiology and Immunology whose research focuses on emerging infectious diseases of wildlife.
- Dr. Susanne Sokolow, a disease ecologist and veterinarian at Stanford University’s Woods Institute for the Environment and UC Santa Barbara’s Marine Science Institute whose research focuses on discovering and promoting ecological solutions that benefit both human and environmental health.
- Dr. Pramod Pandey, an agricultural engineer by training and Associate Specialist in the UC Davis Department of Population Health and Reproduction whose research focuses on solutions to manure management, renewable energy technologies like anaerobic digestion, and related issues such as microbial pollution in environmental waters caused by animal waste.

The panelists shared an enthusiastic discussion on the impact that increased urbanization and population growth will have on the health of rural and wild populations. It also touched on the growing agriculture sector, which is also fueled by these trends, and how it will exacerbate these One Health issues. The diversity of the panelists was highlighted by a conversation that ranged in topic from the relationship between wildlife feeding by humans and the emergence of zoonotic diseases to the impact of habitat fragmentation on ecosystem health and, by extension, human health. The panel deliberately focused on more than just challenges by also providing the attendees with ideas of solutions such as research results of the most effective tree species in removing pollutants from the air and technologies that can transform California's dairy manure into beneficial fertilizer products and renewable energy.



*Top: Panel 1: Urban-Rural Interface Panel Q&A Discussion*

*Bottom from left to right: The Symposium lecture room at full capacity listening to Dr. Freer-Smith; Dr Kevin Keel discussing disease crossover from wildlife to humans; Dr Susanne Sokolow connecting the feedback loops between the ecological environment and humanity; and Dr Pramod Pandey describing agricultural technologies that have the potential to decrease pollution and greenhouse gas emissions in California and across the globe.*

## Panel 2: Political Interfaces and One Health

The second panel brought together experts of Public Health Policy, Veterinary and Human Medicine, and the Social Sciences to discuss the impacts of human-defined political boundaries on the health outcomes of vulnerable populations and the environment in different regions of the world. This panel was moderated by Tyler Barzee, a PhD candidate in Biological Systems Engineering at UC Davis (see “Our Team” section).

Speakers for this panel included:

- Dr. Stefano Bertozzi, a professor and Dean Emeritus of Health Policy and Management at the UC Berkeley School of Public Health whose work focuses on increasing health resources for those affected by HIV/AIDS, Malaria and Tuberculosis around the world and advising NGOs and ministries of health and social welfare in Asia, Africa and Latin America.
- Dr. Eric Davis, a veterinarian for the UC Davis Veterinary Medical Teaching Hospital, an associate of the school’s International Animal Welfare Training Institute and its Veterinary Emergency Response Team (VERT), and the lead veterinarian for the California State Fair whose work focuses on providing rural veterinary services and training in underserved communities of the western United States, Mexico, and Nicaragua.
- Dr. Carrie Teicher, the Director of Programs at Doctors Without Borders/Medecins Sans Frontieres USA and an Epicentre USA Representative whose work focuses on addressing health concerns related to humanitarian crises around the world.
- Dr. Amanda Crump, an Assistant Professor of Teaching in International Agricultural Development at UC Davis whose research focuses on improving educational outcomes for women and other underserved adults studying and working in agriculture and developing new evaluation metrics to improve educational outcomes for people who have less access to formal education.

The panelists dove into conversations on how political boundaries in a continuous environment create an interface that affects populations on both sides, using both domestic and international work experiences to emphasize their points. The panelists led a thought provoking and enthusiastic discussion that illuminated the challenges faced by specific groups throughout the world and demonstrated the importance of efforts to understand the social and cultural factors that must be navigated to bring about desirable outcomes. Vulnerable populations facing political persecution, racial or gender

discrimination, war, and lower socioeconomic status were the main focus of the panel and while the realities of these topics were disheartening, the panelists ultimately delivered inspirational messages about the possibilities to improve future generations. The panel wrapped up with each panelist describing their advice for future professionals and academics to get involved and make a positive impact on the world's most vulnerable humans and animals.



*Top: Panel 2: Political Interfaces Panel Q&A Discussion*

*Bottom from left to right: Dr Stefano Bertozzi introducing his Public Health work with vulnerable populations across the globe, Dr Eric Davis describing the complicated relationships between working animals and humans in developing communities, Dr Carrie Teicher comparing the goals of humanitarian organizations like Doctors Without Borders with broader development efforts, and Dr Amanda Crump discussing the role of social sciences in the achievement of health and development goals in vulnerable populations.*

## Breakout Sessions:

Following the two Panels, the audience was invited to participate in a networking lunch where participants mixed with professionals and students from different backgrounds and learned about each-other's work. The lunch was followed by three concurrent Breakout Sessions that, similarly to the panels, each focused on a unique "Interface" concept. Participants were invited to choose among the

three Breakout Sessions for the topic they were most interested in. The goal of the Breakout Sessions was to include an even more interactive experience by allowing more intimate and focused discussions and activities.

### US-Mexico Breakout Session

This breakout session explored the current political climate in the United States and the domestic policies impacting the lives of refugees crossing the US-Mexico border. In this session, participants followed the fictitious story of a refugee family and their experiences facing multiple challenges related to One Health including: migration prompted by severe weather events due to climate change, exposure to wild and domestic animals and zoonotic pathogens, and the legal and political situation these refugees faced upon their arrival.

Dr. Sergio Aguilar-Gaxiola facilitated the session along with a three-student team consisting of Spencer May (medical student), Megan Doyle (PhD student in Ecology), and Laura Shultz (veterinary student). Dr. Aguilar-Gaxiola, MD, PhD is the Director of the UC Davis Center for Reducing Health Disparities. He is an internationally renowned expert on mental health in ethnic populations, and his research has shown that the children of immigrants have increased rates of mental health disorders. He is also the coordinator for Latin America and the Caribbean of the World Health Organization's Mental Health Survey.

Session participants had a chance to explore community-based solutions to address environmental, animal, and human health challenges faced by refugees throughout the discussion. This audience-driven discussion proved especially rich due to the participation of veterinarians, medical professionals, and a representative from the United States Department of Agriculture. Each party was able to compare their contribution and role in addressing the One Health problems being investigated in the session.



*US-Mexico Breakout Session, Left- Student Facilitator Spencer May and Right - Dr Sergio Aguilar-Gaxiola*

## Coastal Borders Breakout Session

During the coastal borders breakout session, participants had the opportunity to learn about the environmental causes and dangers of Harmful Algal Blooms (HABs) locally and globally and discuss mitigation strategies. The session was split up into two parts in order to focus on a highly relevant organism for each type of HAB (freshwater and marine): the first half focused on *Microcystis*, a freshwater cyanobacteria, and the second half focused on *Pseudo-nitzschia*, a marine diatom containing the neurotoxin domoic acid.

Dr. Melissa Miller, a wildlife veterinarian specialist/pathologist for the California Department of Fish and Wildlife, provided a brief introduction to each topic before the student facilitators presented brief case studies and a set of discussion questions. A veterinary student (Stacy Kim) led the discussion on *Microcystis* HABs by using the Toledo water crisis, a freshwater algae bloom that impacted local drinking water supplies, as an example. The discussion questions invited the participants to contemplate the negative impacts of the event beyond just drinking water impacts and included discussion of social, economic, and environmental issues. Afterwards, an engineering student (Tyler Barzee) led the discussion on *Pseudo-nitzschia* HABs by focusing on “The Blob”, a multi-year weather event that brought warm waters to the Pacific coast of the US. The discussion focused on the detrimental effects that this event had on the fishing industry and the associated social and economic effects that this brought about in local communities reliant on the seafood industry. The discussion wrapped up with an exploration of the ways in which “The Blob” can help us anticipate future changes to our oceans resulting from climate change.



*Coastal Borders Breakout Session, Left- Dr Melissa Miller introducing Harmful Algae Blooms and Right - Student Facilitators Stacy Kim and Tyler Barzee*

## Cultural Interfaces Breakout Session

The cultural interfaces breakout session explored how a One Health perspective and culturally sensitive techniques can improve patients' medical history retrieval process. The session was facilitated by Dr. Eric Davis, a veterinarian with the UC Davis School of Veterinary Medicine who has extensive experience working abroad. During the session, attendees watched a veterinary student (Hannah Skolnik) and medical student (Stephanie Rasmussen) complete an interview with a subsistence farmer from Guatemala. The farmer had a horse with a low body condition and wanted the horse treated. The farmer needed the horse to be able to pull timber for the farmer to sell. The farmer used the money from selling timber to purchase medications for his chronically ill wife. The first simulated history showed what details are missed when cultural sensitivity is not considered. The group stopped and discussed what could have gone better and then repeated the simulation to show the difference that cultural sensitivity makes in improving health outcomes.



*Cultural Interfaces Breakout Session, Left - Student Facilitators Stephanie Rasmussen and Hannah Skolnik and Left - Dr Eric Davis participating in a mock history-taking in a culturally sensitive case study*

## Concluding Remarks

The concluding remarks were given by the Dean of the School of Veterinary Medicine, Dr. Michael Lairmore, and the Dean of the School of Medicine, Dr. Allison Brashear. This was the first ever symposium where the Dean of the School of Medicine attended to accompany Dean Lairmore in his remarks. Both Deans emphasized their enthusiasm for One Health and goals to increase

collaboration across our campuses. In addition, Dean Lairmore elaborated on the major highlights from the day, discussing how each speaker added to the overall theme of “Interfaces” and helped widen the attendee’s perspectives on One Health. They were delighted with the diversity of backgrounds and expertise of the speakers and attendees and expressed hope about the expansion of One Health concepts across the UC Davis campus and beyond.



*Concluding Remarks from Dean Michael Lairmore of the School of Veterinary Medicine (left) and the Dean Allison Brashear of the School of Medicine*

### Poster Session/Reception

The symposium ended with a reception and a poster session. Three veterinary students and two undergraduate students from UC Davis presented their research highlighting One Health themes such as “Association of zoonotic protozoan parasites with microplastics in seawater: Implications for human and wildlife health,” “Surveying for antimicrobial resistance among small household poultry flocks in Tanzania,” and “Joint Indicators of Animal Welfare and Worker Safety Risks in the Dairy Industry.”

### Bone Exchange

Immediately after the reception, the students from both the Students of One Health Club at the School of Veterinary Medicine and the One Health Interest Group at the School of Medicine hosted a comparative anatomy and disease seminar about animal and human hip dysplasia and osteoporosis. It was a new addition to the symposium’s format from last year that was meant to encourage professional students from each school to engage with one another. Using a peer-to-peer teaching method, veterinary and human medical students offered a window into each other’s basic science and clinical training using human, dog, horse, and tiger bones to demonstrate shared hip anatomy and pathology.

# EVENT OBJECTIVES & RESULTS

## Objectives

When beginning the planning process for this symposium, goals were identified that influenced the structure of the event this year.

1. The first goal, to increase dialogue and interactions between students and professionals in One Health, was split into two related objectives:
  - a. Three 90-minute breakout sessions utilizing facilitated dialogue would be led by experts in their field at this year's symposium; allowing audience members in a smaller group to work together to evaluate a One health problem and foster connections between individuals.
  - b. Over the lunch hour at this year's symposium, a room would be dedicated to networking for audience members, including both students and professionals.
2. This year's symposium will be held on the UC Davis School of Medicine Campus in order to increase the number of medical students attending by at least 20%.
3. At this year's symposium, one of the panels would focus on a One Health topic that does not focus on zoonotic disease in order to further expand the breadth of this year's symposium in comparison to previous years.

## Results

### Objective 1

The first two objectives, 1a & 1b, relate to increasing the interactions between audience members, especially between students and One Health professionals. Two new events were piloted at this year's symposium in order to achieve this goal.

First, three concurrent breakout sessions were added to the afternoon (replacing a third panel that had been conducted in previous years). This allowed more One Health topics to be discussed and broke the audience into smaller groups. The topics of the three 2019 breakout sessions were: US-Mexico Border, Coastal Borders, and Cultural Interfaces. These 90 minutes sessions were focused on interactive, facilitated dialogue activities and were led by an expert in their field as well as two to three members of the student planning team.

In each 90-minute session, there was a presentation of introductory material, and at least half the session was dedicated to guided discussion between audience members, fostering the sharing of ideas between all members. At this year's symposium, the sessions were first come first serve for attendance. When these sessions were first envisioned, the audience members were going to be assigned so that the student planning committee could ensure that each area of One Health was represented: human medicine, veterinary medicine, environmental, and non-medical One Health professionals, such as engineers. However, the committee encountered various challenges when trying to implement this. We sent a survey to all registered attendees the week before the symposium to ask them for their preference, however not all participants filled out the survey. Additionally, this did not account for registrants that registered the day of the symposium. These challenges were not fully anticipated by the student team and prevented pre-assigning breakout sessions. In the future, if breakout sessions continue to be utilized at the One Health Symposium, it would be beneficial to require registrants to choose which breakout they would like to attend as they register instead of following up with a second email. This will allow the student committee to have more control in pre-assigning the breakout session to diversify the points-of-view being represented in each discussion.

Despite this challenge, overall, the breakout sessions were well attended by a mix of students and professionals. The students on each team succeeded in working with their professional to design and execute their 90-minute session. Each one, depending on the expert and students involved took on its own flair. The US-Mexico breakout session utilized rotating stations to guide two different small groups through solution-oriented questions related to the immigration crisis at the border. Following the US-Mexico breakout session, a veterinarian attending the symposium via webinar reached out to the student planning committee in order to get the contact information for the authors on one of the papers being discussed and she is now involved in with the research team. In the coastal borders breakout session, they walked through case studies for both marine and freshwater systems. In the cultural breakout session, the students acted out a history-taking scenario and then invited suggestions from the audience to improve the cultural sensitivity of the history interview. Following this, students then replayed the scenario to see how much more pertinent information was gathered. Additionally, a survey was sent to participants that attended the sessions to obtain their feedback, which can be incorporated into future symposia.

To increase interaction between students and One Health professionals from various disciplines, a room over the lunch hour was dedicated to networking. At the 5th Annual One Health Symposium in 2018, it was observed that students and professionals preferred to stay within their known social groups than

network with each other over lunch. This year, it was announced in the morning announcements and at the close of the panel just before lunch that a space exists dedicated to mingling. Approximately 40 people out of the 120 attendees convened for lunch in the dedicated networking space, with a ratio of 2 students to every one professional. As the networking group came down the stairs to join the main group for the second panel of the day, conversations were still ongoing, and quieted only as the panel got underway.

## Objective 2

The second objective for this year's symposium was to increase non-veterinary student attendance, specifically medical students. The symposium was originated in the veterinary school and has reliable attendance from the veterinary school, but in the spirit of One Health, efforts are being made each year to include more students and professionals from other fields across UC Davis and the country. In order to make this broad, overarching goal achievable by this year's symposium, medical students in particular were focused on, with the goal of increasing medical student registrants by 20%.

This was the first year that the One Health Symposium was hosted by the UC Davis School of Medicine, and the first time it was held at any other location other than the School of Veterinary Medicine. The driving force for this decision was that this may help decrease the barrier for participation from the medical students as they would not have to commute to Davis from Sacramento for the event. Additionally, in the past there has always been one medical student on the planning committee, this year there were two: Stephanie Rasmussen and Spencer May (see "Our Team" section), who were key players in helping us overcome challenges of hosting the symposium in a new location that the planning committee was unfamiliar with. They guided the planning committee through the logistical and technical challenges and knowledge needed to choose appropriate rooms and lecture halls for the symposium and what activities would be feasible within each space. We also brought in a faculty advisor from the medical school, Dr. Wilkes, who was able to provide insight and academic support from the medical school. Dr. Wilkes was also able to obtain funding to subsidize the ticket cost for all medical students who wanted to attend the symposium, which decreased another barrier to medical student attendance.

In 2018, at the 5th Annual One Health Symposium, 14 medical students registered from the UC Davis School of Veterinary Medicine. At the 2019 6th Annual One Health Symposium, 16 UC Davis medical students registered. This represents a 14% increase over the 2018 symposium. Another medical student also attended from University of California San Francisco, including this student increases medical student participation to 21% over 2018. While including this UCSF medical student in the calculation means that the objective was met, the

changes that were made to the symposium were not aimed at UCSF students and his attendance was likely not influenced by the efforts of the planning committee. Looking at the 14% increase in UC Davis medical students, it is difficult to attribute this to the changes that were made to this year's symposium because the increase represents only two students and this could be a fluctuation in attendance associated with other factors outside of efforts to expand involvement at the medical school.

Efforts to increase attendance from other schools and professions will continue in future years. Next year, the symposium will be held at the UC Davis Betty Irene Moore School of Nursing in Sacramento. A nursing student has been recruited to join the planning committee for next year, and efforts are underway to continue building relationships as the medical school and nursing school.

### Objective 3

The student planning committee recognized that zoonoses are often given as examples of One Health, and while these are important problems to address and a wonderful example of One Health, the One Health approach encompasses many additional "wicked problems." By expanding the focus to encompass more than non-zoonotic disease issues, the idea of what "One Health" means to the audience members could be expanded. To address this, the committee made an objective to plan a panel focused on a One Health topic outside of zoonotic diseases; entitled "Political Interfaces and One Health." Including two human medical doctors, a veterinarian, and social scientist focusing on international agricultural development (see "Event Description" section) stimulated a passionate and in-depth conversation focused on vulnerable populations and how access to health care and education can influence the health outcomes for people, plants, animals, and the environment. Non-medical student registration increased by 43% over 2018, which can probably be attributed to the increased emphasis on interdisciplinary topics, attracting students from a wider variety of fields than ever before.

Moderated and organized by Tyler Barzee, an engineering PhDc (see "Our Team" section), audience engagement was high, with several questions being asked to the panel that expanded and deepened the conversation. Tyler also met with his panelists before the symposium to introduce them to each other and discuss aspects of their work and One Health that they would like to focus on. This organizational strategy fostered deeper discussion as the panelists were already familiar with each other's work and could reference each other in their answers to questions. From anecdotal feedback, this was the most well-received panel of the day, highlighting a very relevant topic in One Health within today's political climate. The emails and organizational strategy that Tyler pioneered is being made into templates for students on future planning committees to utilize and streamline future efforts.

STUDENTS FOR ONE HEALTH & UC DAVIS ONE HEALTH INSTITUTE PRESENT THE  
6<sup>TH</sup> ANNUAL ONE HEALTH SYMPOSIUM

# INTERFACES

One Health at Borders and Margins

SATURDAY, NOVEMBER 2

9:00AM - 5:00PM

UC Davis School of Medicine

For tickets & more information visit: [www.onehealth.institute](http://www.onehealth.institute)



## PROMOTIONAL PLAN AND OUTCOME

The 2019 promotional efforts of the 6th Annual One Health Symposium resulted in the symposium reaching maximum capacity for on-site registrants in the days leading up to the symposium, and 40 participants via webinar from across the United States. There were in-person participants from as far away as Canada and New York state and webinar attendees from as far away as Canada and Kentucky.

A poster was designed with the help of a graphic designer in the One Health Institute (above). The event was listed on several event calendars, including that of the UC Davis Campus, School of Veterinary Medicine event calendar, School of Medicine event Calendar, and the calendar for the Center for Continuing Professional Education (CE Office). Registration pages were created through both the One Health Institute's (OHI) website and the website of the CE office. A Facebook event page was created to incorporate social media into the promotional plan. After this groundwork, the poster was circulated widely,

directing people to the OHI webpage for more information. Flyers were sent to the Global Affairs Colleges, Global Disease Biology Undergraduate Program, UC Global Health Institute Planetary Health Center of Excellence, San Francisco Bay Area Global Health e-newsletter, health campus internal communications, Betty Irene Moore School of Nursing, and sent out to the engineering graduate group listservs. In the weeks leading up to the event, blog posts were shared on OHI's website highlighting different speakers, sessions, or posters included in the symposium.

These efforts resulted in the symposium on site attendance maxing out in the days leading up to the event. There were 158 on site registrants and 40 registrants via webinar. Table 1 shows a breakdown of how many registrants participated from different fields in One Health. Figures 1 and 2 show the geographical locations of on-site attendees and webinar attendees respectively. Compared to 2018, we had a 13% increase in attendance (from 130 to 147), but in 2018, there was a higher maximum capacity which was not reached (65% of the 200-seat lecture hall was filled at the 2018 symposium). At the 2019 symposium, we hit maximum capacity, filling every seat and turning away potential participants due to lack of space.

The day of the symposium, student planning committee members and OHI staff shared the events of the day on various social media platforms utilizing the hashtag #OneHealthUCD2019 so that engagement could be tracked. Table 2 shows the reach of the symposium's social media presence on Facebook, Twitter, and Instagram.

Despite the success of social media and promotion, there is one aspect of the promotional plan that could be improved in future symposiums: a more thorough inclusion of various graduate groups throughout UC Davis and beyond. This issue was identified by the student planning committee this year (too close to the symposium to implement a correction due to full attendance), but this will be addressed by next year's planning committee. A plan was made to send the flyer and promotional materials to the graduate coordinators of various graduate groups at UC Davis (for example: International Agriculture Development, Epidemiology, Population Biology, Ecology, etc.) to distribute to the students to gather increased representation from diverse fields across One Health. Additionally, the promotional packet will be sent to each speaker and facilitator when they accept a role in the symposium to distribute to their coworkers, students, graduate groups, etc. As this year's symposium had speakers from various institutions including Stanford University's Woods Institute for the Environment, UC Berkeley School of Public Health, Doctors Without Borders, and the California Department of Fish and Wildlife, this could have garnered additional diversity in attendance.

Table 1. The registrants at the 6th Annual One Health Symposium

On-Site Registrants		
Category	Number of Registrants	% of Total On-Site Registrants
DVM	24	16.9%
Human Medical Professional	8	5.6%
Non-Medical Professionals	12	8.5%
RVT/Vet Tech	2	1.4%
DVM Student	48	33.8%
MD Student	17	12.0%
Non-Medical Graduate Student	20	14.1%
Undergraduate Student	8	5.6%
General Public	3	2.1%
Webinar Registrants		
Category	Number of Registrants	% of Total On-Site Registrants
DVM	22	55.0%
RVT/Vet Tech	8	20.0%
Non-Medical Professionals	2	5.0%
Non-Medical Graduate Student	6	15.0%
Undergraduate Student	1	2.5%
General Public	1	2.5%

Table 2. Social Media data; reach and engagement was shared for Facebook, Twitter, and Instagram. This data is all “organic,” meaning that no fees were paid for boosted outreach.

Social Media Platform	Reach	Engagement
Facebook	507 views	45 (8.9%)
Twitter, Day of	8692 impressions	626 (7.2%)
Twitter, Following Day	9393 impressions	--
Instagram	132 views	--



Figure 1. Registrants from 18 different cities traveled to attend the 6th Annual One Health Symposium; the hometown cities of symposium participants are pinned.



Figure 2. Webinar Registrants were from 27 different cities (pinned above), including two in Canada, gave the symposium an international reach.



*From left to right: Three members of the student planning committee at the symposium, a full audience, and the deans with the Calvin Schwabe Lecturer.*

## ADVANCING ONE HEALTH

The 6th Annual One Health Symposium engaged a more diverse array of professionals and students than any previous year. For instance, there were speakers from environmental science, ecology, engineering, and social science fields. There were several important conversations about solutions to One Health issues during the panels and breakout sessions, highlighting the need for various perspectives in order to approach these issues more holistically. This emphasis on including more voices in One Health conversations set the standard for future symposiums and events, which will enable One Health to continue growing as an interdisciplinary movement.

Many of the speakers had a very limited understanding of the breadth of One Health issues, and some even admitted to never even hearing the term prior to being asked to speak at this event. Because these speakers are leaders in their respective fields, they can have a major influence on advancing One Health beyond the animal and human health disciplines. They also made valuable connections with one another throughout the symposium and the planning process, which will hopefully result in collaborations on One Health projects in the future.

The attendees predominantly consisted of students and veterinary professionals with an interest in One Health, and by experiencing this day-long symposium they were able to explore it further and become better equipped to utilize One Health concepts in their work and research. There were also several opportunities during lunch, breaks, and the breakout sessions to network with each other, as well as the speakers to gain career advice on how they can become more involved with One Health in the future. Ultimately, this symposium provided valuable insights on the various paths that students and professionals can take to serve as advocates for One Health.

# CONCLUSION

The 2019 6th Annual One Health Symposium, Interfaces: One Health at Borders and Margins was a day filled with networking, interesting discussions, new formats, learning opportunities, and enthusiasm for the One Health approach. In the US Mexico Breakout Session, Dr. Aguilar-Gaxiola closed the session by stating how much his view of what One Health is and how it relates to his career has expanded after working with the student team to design their collaborative breakout session. A veterinarian attending the symposium via webinar reached out to one of the student committee members and is now involved in one of the research projects discussed at the symposium. It was the first year the symposium was held at a location other than the School of Veterinary Medicine, and in a show of support, not only did both the Dean of the School of Veterinary Medicine and the Dean of the School of Medicine make closing remarks, but also the Chancellor of UC Davis opened the symposium. This year, the One Health Symposium spread its reach farther into the university and laid the groundwork for future collaborations.

If honored with this award, the award money will be allotted to the Students for One Health Club and utilized to expand next year's symposium into a two-day event. The first day will continue the current format with Continuing Education credit begin offered. In an effort to continue involving more disciplines, the symposium will be hosted at the Betty Irene Moore School of Nursing in 2020. On Sunday, inspired by the annual Cadaver Exchange at Tufts University, the goal is to add an extension of this year's (pilot) Bone Exchange. Utilizing lab space and both human and animal cadavers, vet and medical students will explore a topic correlated to the previous day's activities, mirroring Tuft's format where veterinary and medical students walk each other through stations with cadaver specimens exploring different aspects of one subject (personal communication).

*The 2019 One Health Symposium Student Planning Committee thanks you for your time and consideration.*

# PROOF OF GOOD STANDING

UNIVERSITY OF CALIFORNIA, DAVIS

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DAVIS, CA 95616  
(530) 219-1369  
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November 25, 2018

Dear One Health Day Commission Student Competition Review Committee,

I am pleased to provide this letter of support for the application by University of California, Davis students who are submitting a One Health Day Project 2019 project application based on the well-received 6th Annual One Health Symposium held at the UC Davis School of Medicine on World One Health Day on November 2, 2019. I can verify that the students Laura Shultz, Stacy Kim, Shannon McDiamond, Tyler Barzee, Spencer May, Stephanie Rasmussen, Megan Doyle and Brooke Genovese are in good academic standing in their professional or graduate programs at this time.

Sincerely,

A handwritten signature in black ink that reads "Tracey Goldstein".

Tracey Goldstein, PhD  
Professor and Acting Director  
One Health Institute  
School of Veterinary Medicine  
University of California  
Davis, CA 95616

