Dear Friend,

At Sonoma State University, we give all students the opportunity to learn from the outdoors in a very practical way: by working on real-world environmental challenges.

The urgency to address these challenges couldn’t be greater. In 2016, the World Economic Forum identified climate change as the biggest potential threat to the global economy. Our educational institutions need to get in front of this challenge.

At SSU, we are fortunate to have over 4,200 acres of nature preserves to study and address these challenges. Through the Center for Environmental Inquiry, we are finding ways for students and faculty to work with industry partners on key environmental issues. In 2016, these included topics such as water shortage, loss of biodiversity, climate change, and more.

These experiences are incredibly powerful. We’re not talking about old-fashioned field trips! Instead, students are getting out in the field to collect data, analyze the results, and collaborate on finding creative solutions. These experiences are helping students develop 21st century job skills. They’re also helping our partners generate new research and gain access to a talented pool of job candidates.

I continue to be amazed by the incredible work being done by our faculty and students. In fact, this year we conducted a record number of projects with our community partners—41 in total. Through this annual report you will get a glimpse into the powerful and important work being done through the Center.

With our society facing the biggest environmental challenges in history, I cannot think of a better way to prepare tomorrow’s leaders. Please read on to learn more and join us in creating an Environmentally Ready Generation!

Sincerely,

Dr. Claudia Luke, Director, SSU Center for Environmental Inquiry

2016 PARTICIPANTS:

» 1,243 university students
» 1,110 K-12 students
» 605 adult community members
OUTDOOR LEARNING FOR ALL DEGREES

You cannot ask for a more powerful learning tool than nature! Through the Center for Environmental Inquiry, we are finding ways to make learning experiences in and around SSU’s preserves relevant to all degrees.

A great example this year was the Nature!Tech Collaborative, a new program that we launched in the fall. Through it, we are bringing faculty and students from engineering and computer science together to work on a variety of environmental issues. One of the most intriguing projects was the development of an early flood warning system for the city of Rohnert Park. In fact, this past spring, Senior Jarrett Baglietto and Engineering Science professor Dr. Farid Farahmand shared their plans for this new technology at a global ‘Tech Jam’ event sponsored by the National Institute of Science & Technology.

Today’s ecological challenges are big and complex. To solve them, we need to bring as many disciplines to the table as we can. Doing so will encourage the kind of innovative thinking society needs to address these challenges.

IN 2016, 49 FACULTY MEMBERS FROM 22 DEPARTMENTS WORKED ON PROJECTS AS PART OF CENTER PROGRAMS

SSU FACULTY:
Owen Afinson, Geology
Bron Anderson, Philosophy
Carlos Ayala, Education
Jeff Baldwin, Geography
Caroline Christian, ENSP
Matt Clark, Geography
Mike Cohen, Biology
Hall Cushman, Biology
Scott Eberle, Psychology
Eric Edlund, Geography
Steve Esles, History
Farid Farahmand, Engineering Science
Laura Garrison, Biology
Nicholas Geist, Biology
Robert Girling, Business
Derek Girman, Biology
Michelle Goman, Geography
Jacquelyn Guilford, CE
Chris Halle, Engineering Science
Debora Hammond, Hutchins School
Genevieve Healy, Geography
Roberta Hodges, American Language Institute
Laurel Holmstrom-Keyes, Women’s and Gender Studies
Fran Keller, Biology
Mads Lynnerup, Art
Nicole Myers, Geology
Mark Perri, Chemistry
Adrian Praetzellis, Anthropology
Jeremy Qualls, CEI
Nathan Rank, Biology
Rocky Rohwedder, ENSP
Russ Scara, Hutchins School
Scott Severson, Physics
Martha Shott, Math and Stats
Wendy St. John, Biology
John Sullivan, Philosophy
Tamas Torok, Biology

FACULTY FROM OTHER UNIVERSITIES:
Janice Alexander, Santa Rosa
Junior College
Jenny Davidson, Bowdoin College
Daniel Fernandez, CSU-Monterey Bay
Sue Blondell, Mendocino Community College
Steve Cardimona, Mendocino Community College
David Hilton, UC-San Diego
Elyse Lord, UC-Davis
Bruce Kendall, UC-Santa Barbara
Ross Moentemeyer, University of North Carolina
Charles Mitchell, University of North Carolina
Kasey Wade, Santa Rosa Junior College
Dave Rizzo, UC-Davis

“I’m incredibly thankful for the experience I gained by working on the flood warning system—it was critical in helping me find a job.”

One of the best ways to prepare for the future is to work on real-world challenges. It’s an approach to education that we embrace at SSU—and one that is helping students in more ways than you might realize. Just ask SSU graduate student Kerry Wininger.

Kerry has been studying Sudden Oak Death, a disease that is causing dramatic declines in oaks across California. We supported Kerry’s work through partnerships established with Pacific Gas and Electric Company and other local organizations. “It’s been an incredible experience,” says Kerry, a candidate for Master of Science in Biology. “I’ve been able to conduct my own unique research on interactions between insects and the disease, present my findings at major conferences, and meet with international thought leaders.”

Partnerships around real world challenges are helping students grow, both academically and professionally. And they are also helping our partner organizations answer critical environmental questions. It’s a true win-win that attracts more and more partners each year.

“In 2016, 64 organizations worked on environmental challenges as part of center programs."

Aerotesta  
Austin Creek Elementary  
Bellevue Elementary  
Bella Elementary  
Bodega Marine Reserve  
California Department of Fish and Wildlife  
California Geological Survey  
California Lichen Society  
California Regional Environmental Education Committee  
City of Rohnert Park  
City of Santa Rosa  
D’Argenzio Winery  
Dew Mobility  
Dunham Elementary  
Evergreen Elementary  
Goldridge Resource Conservation Service  
Grant Elementary  
Gravenstein Elementary  
Green Flash Consulting  
Hidden Valley Elementary  
Hoplnd Research Extension Center  
IBM  
Jack London Elementary  
KZYX  
Laguna de Santa Rosa Foundation  
Madrone Audubon Society  
Mendocino County  
Mendocino County RCD  
Miwok Valley Elementary  
Monte Vista Elementary  
National Audubon Society  
National Resource Conservation Service  
Occidental Arts and Ecology Center  
Outward Bound  
Pacific Gas and Electric Company  
Pacific Watershed Associates  
Penngrove Elementary  
Pepperwood Preserve  
Pollinator Partnership  
Proctor Terrace Elementary  
Rancho Adobe Fire District  
Rancho Cotati High School  
Richmond College Prep  
Roseland Creek Elementary  
Sacramento Municipal Utility District  
Santa Rosa Junior College  
Smart City SGA/R20  
Social Advocates for Youth  
Sonoma County Agricultural Preservation and Open Space District  
Sonoma County Sustainable Tourism Observatory  
Sonoma County Water Agency  
Sonoma Land Trust  
Sonoma Mountain Ranch Preserve  
Strawberry Elementary  
Sustainable North Bay  
The Nature Conservancy  
Tree Farm, Eldorado  
United Arborists Association  
University of North Carolina  
US Fish & Wildlife  
US Forest Service  
Vintners Square  
Wilson Elementary  
Yorkville Highlands Growers and Vintners Association  

“Through the Center, I’ve been able to conduct ground-breaking research on Sudden Oak Death, and share my discoveries with both the public and scientific community.”

—Kerry Wininger, teaching tour participants how to identify symptoms of Sudden Oak Death.
Outdoor learning and real world challenges are a powerful mix—one that often leads to innovation. Just ask Ken Rauen, a double major in Philosophy and Psychology, and Jorge Casanova, a double major in Philosophy and Environmental Science.

Working under the guidance of Philosophy professor John Sullins, Ken and Jorge created a Lego-based robot to monitor micro environments in tree canopies at SSU’s Fairfield Osborn Preserve. Their design exemplified philosophical values such as leaving a small footprint, stewarding nature without overt control, and making something to capture the imagination of visitors to the preserve, especially the many school children who visit each year.

These kind of hands-on projects improve learning retention and help students develop 21st century job skills, such as communication and creative problem solving. They can also help students find a job: Jorge landed an internship with Sonoma Clean Power Company.

“Working on this robot was a unique opportunity for me to mix both my majors”
— Jorge Casanova, Double Major in Philosophy and Environmental Studies

In 2016, students worked on over 40 real world projects with community partners, including:

- Antibiotics in wastewater
- Excess nutrients in stream sediments
- Sustainable water solutions in K-12 schools
- Philosophical values that drive water use choices
- Douglas fir dominance along streams
- Environmental sensor-to-screen network
- Automated early flood warning system
- Computer software for studying rainfall and fire
- Clay sculptures in a rainy world
- Nature tours for elementary schools
- Habitat restoration at five sites in west county
- Water monitoring system for wells and storage
- Animal response to climate change
- Animal response to utility corridor management
- Computer program design to study CO2 and temperature across the US
- Biotreatment of winery wastewater
- Solar optimization for sensors
- Image processing for autonomous outdoor vehicles

Students Ken Rauen, Jonah Baumgartner, and Jorge Casanova showing off the robot at this year’s Symposium on Research and Creativity, with NatureTech lead Chris Halle
2016: A YEAR OF GROWING PARTNERSHIPS

This year, we continued to grow our programs to provide transformational experiences for students of all ages.

Our first Nature!Tech Conference, for example, sparked five new long-term partnerships with technology companies. Thanks to the generosity of Pacific Gas and Electric Company and the Green Music Center, this conference explored topics such as nature as a model for innovation, drones for gathering data, phone apps to eliminate litter, and more. Our new partners include the drone company Aerotestra and Seventh Generation Advisors and Region 20, as part of the Smart City Initiative.

We also infused new ideas and expertise into programs by forging a new partnership with Outward Bound California. Outward Bound is known for providing transformational leadership training in the outdoors. Thanks to the generosity and vision of Jim Kuhns, one of our donors and volunteers, we kick-started a collaboration with a training for Sonoma State students in our Naturalist Training program. They not only learned about themselves and each other, but are using what they learned to teach elementary school students.

And to top off the year, one of our most active partners, the Sonoma County Water Agency, awarded the Center a new three-year, $339K contract to expand the Center’s Waters Collaborative. The new award increases the number of faculty and students we can support, and includes special projects in water research, restoration, and water use planning.
Over the last six years, participation in the Center’s programs increased by nearly eight fold. As a result, we are actively working on expanding capacity so that all students at SSU have the opportunity to work on a real-world environmental challenge before they graduate.

Our near-term goal is to provide more students with overnight experiences at both the Fairfield Osborn and Galbreath Wildlands preserves, our two most active sites. At the moment, we have very limited overnight capabilities. However, thanks to the generosity of donors Bill and Joan Roth, Daphne Smith, and Bob Johnson, we have begun to make more overnight stays possible.

Longer term, we have a vision to build a 21st century learning facility at the 3,670-acre Galbreath, which is located less than an hour from campus. This year we completed a facility plan with RIM Architects—as you can see, they are beautiful! More importantly, they are innovative. The buildings not only demonstrate the latest principles in sustainability, but also use biophilic design to connect people to each other, and smart technology to teach visitors how their actions affect the earth’s resources.

The facilities at the Galbreath will enable us to grow our programs and reach all SSU students, no matter what their major, to prepare them for the environmental challenges that they are sure to face in the future.
The Center’s approach to environmental education is unique. Importantly, it is great way to build connections between the University and the community. This helps the community benefit from the University’s research expertise, it helps students get real world experience, and it helps enhance learning and research for everyone involved.

This year, we were pleased to be invited to speak at a number of events. These included:

- The IE Sonoma Conference, an event which explores innovation in education
- The Sustainable Enterprise Conference, a high-profile event which looks at sustainability trends in Sonoma County and beyond
- The annual meeting of the Organization of Biological Field Stations, a network of over 200 national and international university field sites

In addition to these events, we also shared our approach and our plans with the communities surrounding our preserves.

There is a lot of excitement about working together to create an environmentally ready generation – we hope to see you at one of our events next year!
WE COULDN’T DO THIS WITHOUT YOU

Through the generosity of donors to the Center for Environmental Inquiry, Sonoma State students gain valuable career skills and work on finding solutions to our toughest environmental challenges. Thank you for investing in an Environmentally Ready Generation!

ANNUAL CUMULATIVE GIVING JANUARY 1, 2012–NOV 1, 2016

**Visionaries $100,000+**  
Bob and Sue Johnson  
Martine Norwick  
William and Joan Roth  

**Pioneers $50,000+**  
Pacific Gas and Electric Company  

**Explorers $10,000+**  
Ana Roth  
Jessica Roth  
Maggie Roth  
Daphne W. Smith  

**Naturalists $1,000+**  
Mike and Paula Aja  
DOF Media LLC  
Susan Norwick Horrocks and Keith Horrocks  
Barbara and Jake Mackenzie  
Jacques and Barbara Schlumberger  
Chuck and Cathy Williamson  
Terri and David Yost  

**Guides $250+**  
Harold and Christine Alderman  
Jon and Vina Breyfogle  
Joe and Judy Brumbaugh  
Ruth Burke  
California Rare Fruit Growers, Inc. - Redwood Empire Chapter  
Tom Cavers and Sol Garay  
Scott Eberle  
Jean Falbo  
David Walls and Lucia Gattone  
Mark Giampaoli  
Google Matching Gifts Program  
Paula Hammett and Bruce Hope  
Judith Hunt  
Sharon and AJ Janulaw  
Richard Karas  
Linda and Jim Kuhns  
Cynthia Morrow  
Dan and Robbie Rhodes  
Jean Schulz  
John Sheey and Laura Szujewska  
Jo-Ann Smith  
Catherine Tornabene  

**Stewards $25+**  
David Ammerman  
Susan Barnes  
Philip Beard  
John and Brenda Blom  
Thomas Bold  
John Brauncome  
Michelle and Kim Covington  
Nirmal and Gwn Dhesi  
Yvette Fallandy  
Norman Feldman  
Lisa Feldman  
Dorothy Freidel  
Paul Geiger  
Louise Hallberg  
Ronald Hayes and Jo Ann Puglisi  
Bryant and Diane Hichwa  
Vin and Margo Hoagland  
Karen Johnson  
Lucy Kortum  
Bill and Sue Krawetz  
Gerbrand Kroon  
Laguna De Santa Rosa Foundation  
George and Kit Lee  
Stephen Lewis  
Gary Marker  
Kristi and Brian McWilliams  
Frances and Glenn Minervini-Zick  
Cazeaux Nordstrom  
Rebecca Olsen  
Laura Owens  
Diane and Hugh Paleczny-Stevenson  
Bruce Peterson  
Raymond Rapp  
Margot and Mark Rawlins  
Bruce Reinik  
Mike and Sue Riley  
Joe and Eileen Tett  
Raye Lynn Thomas  
Pamela Valdes Lanier  
Susan Warner  
Water Resources Planning  
JJ Wilson  
Andrew Wright and Lisa Fitkin  
Berrier Zinyards  

FOREVER GRATEFUL

These special friends have recognized the value of …

**Land:** protecting lands to train an environmentally ready generation

Galbreath Wildlands Preserve  
Fred and Jean Galbreath  
Fairfield Osborn Preserve  
Aria Roth  
Jessica Roth  
Maggie Roth  
William and Joan Roth  
Los Guillicos Preserve  
State of California  

**Endowments:** creating reliable sources of funding in perpetuity for environmental education

Fred and Jean Galbreath  
Martine Norwick  
Georgette Skellenger  

**Legacy Circle:** leaving a legacy or planned gift through living will or trust

Fred and Jean Galbreath  
Bob and Sue Johnson  
Georgette Skellenger  
Daphne W. Smith  

Bob Johnson, his daughter Terri Yost, and grand daughter Kristi McWilliams at the Galbreath Wildlands Preserve. Over the last few years, the Johnson family has been instrumental in helping us grow our programs, from providing students with transportation to supporting the development of our facility plans to volunteering to speak about the late Fred B. Galbreath and his belief in the importance of environmental education. We cannot thank them enough for their support!
YOUR HELP MAKES A DIFFERENCE!

The Center is a public/private endeavor managed through SSU’s School of Science and Technology. More than half of our funding comes from the generosity of private individuals and organizations. Please follow the web address below to make a donation, making sure that you select the Center for Environmental Inquiry.

Website: sonoma.edu/cei/donate/
Email: nature@sonoma.edu
Facebook: SSU Center for Environmental Inquiry
Phone: 707-664-3416
Address: 1801 East Cotati Avenue
Rohnert Park, CA 94928

PARTICIPATE

- Connect with faculty experts through the CEI
- Visit the preserves for education, art or research
- Attend tours and events
- Become a naturalist or steward

PARTNER

- Propose issues/questions to be studied
- Share data or knowledge
- Sponsor work in areas of interest

SUPPORT

- Connect us with potential supporters or partners
- Volunteer to help run events
- Donate

An elementary school class participating in a tour led by SSU students
ABOUT US

Sonoma State’s Center for Environmental Inquiry prepares students to take on the complex environmental issues of our time. Working side by side with community partners, students get professional-level experience addressing real-world challenges. These high-impact educational experiences help them succeed in college while also providing them with the skills, motivation, and understanding to address environmental challenges throughout their careers. The Center’s innovative programs take place in and around SSU’s three preserves.