

# FRENCH LAB



## People



### Susannah French, Associate Professor

Dr. French received her bachelor's degree from the University of Illinois in 2002 and a Ph.D. from Arizona State University in 2006. She was an NIH postdoctoral fellow at Indiana University before she joined the Biology faculty at Utah State University in 2009. Dr. French has received funding from the National Science Foundation and National Geographic, including the NSF Faculty Early Career Development CAREER Award.



### Spencer Hudson, PhD Candidate

Spencer joined the French lab in August of 2015 after receiving his B.S. in Biology/Chemistry from Millikin University in Decatur, Illinois. He is currently exploring the impacts of urbanization on the population demography, physiology, and genetics of side-blotched lizards.



### Emily Virgin, PhD Candidate

Emily joined the French Lab in August 2016 after completing her B.S. at Northern Illinois University. She is primarily interested in how urbanization influences tradeoffs between the reproductive and immune systems in female and male side-blotched lizards.



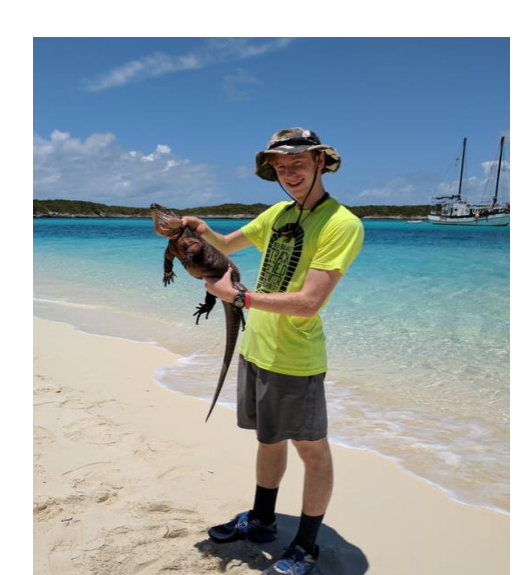
### Erin Lewis, PhD Candidate

Erin completed her undergraduate degree in Biology at Earlham College. She joined the French lab in 2018 and is interested in the impacts of ecotourism and human disturbances on the gut microbiome and physiology of *Cyclura* iguanas.



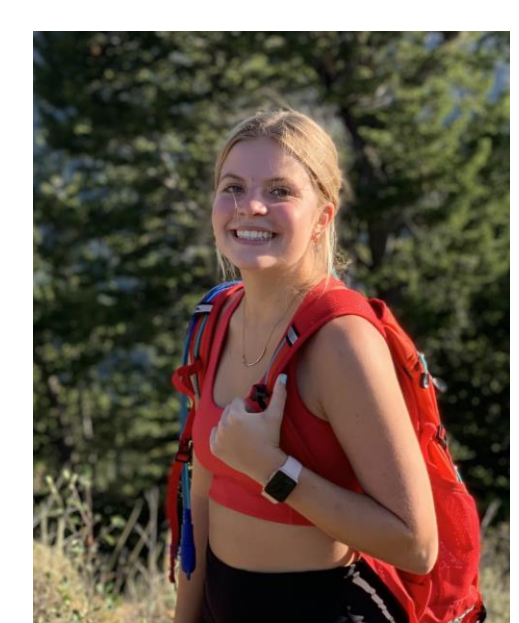
### Claudia Ki, PhD Student

Claudia is a PhD student from New York City who joined the French lab in 2019 after receiving her B.S. degree in Biology at Lafayette College. She studies the reproductive physiology and immunology of the endangered spiny tailed iguana, *Ctenosaur oedirhina*.



### Jack Marchetti, PhD Student

Jack is a PhD student from New York who joined the French lab in 2020 after receiving his B.S. in biology from Denison University. He is interested in the evolution, physiology, and distribution of the invasive coqui frog in Hawaii and the potential threat they pose to endemic flora and fauna.



### Layne Sermersheim, Masters Student

Layne is a Masters student from southern Indiana who joined the French lab in January 2021 after receiving her B.S. degree in Animal Behavior at Indiana University. She is exploring how different temperatures affect the behaviors of side-blotched lizards in both rural and urban sites in St. George, Utah.

## Research



### Population monitoring and physiological trade-offs

The French lab has monitored urban and rural populations of side-blotched Lizards (*Uta stansburiana*) in and around St. George, Utah, since 2010. We capture, mark, and recapture lizards from these populations every year in May and model their population dynamics, which we compare to individual differences in physiology.

### Population physiology and genomics

We are currently studying genome-wide patterns of sequence variation among populations of side-blotched lizards to determine the genetic architecture of life history traits and the evolutionary consequences of urbanization. As such, we are analyzing population-level genetic diversity and structure over time to reveal insights for adaptive potential in urban environments.

### Ecoimmunology

Ecoimmunology, a burgeoning field, presents promising tools that are stress-sensitive and can rapidly and more directly assess the health of individuals within a population. These immunological tools inform functional pathways that provide researchers with an understanding of not simply whether a physiological effect has occurred, but also the downstream health implications for individuals. We are actively applying and developing new ecoimmunology tools to address pertinent questions in ecophysiology.



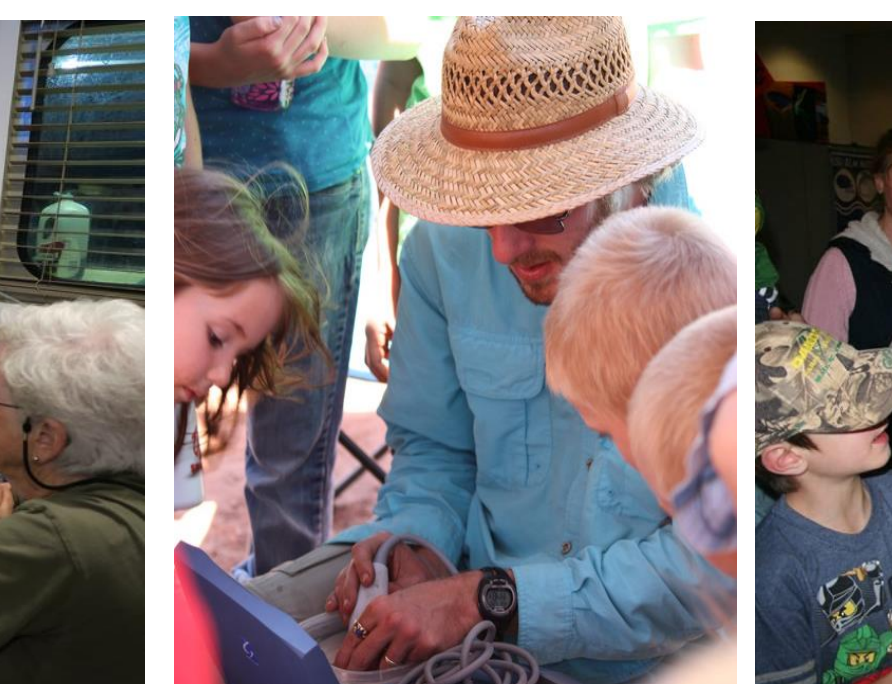
### Ecotourism and anthropogenic disturbance

In much of our research we examine whether current environmental changes affect animal physiology, life history trade-offs and ultimately survival. We are focusing on interactions among stress physiology, energetics, reproduction and the immune system using a myriad of physiological, ecological, and genomic approaches to better understand the implications of anthropogenic changes on individuals and populations. Study species include side-blotched lizards in an urban landscape, ground squirrels in an alpine environment, marine iguanas in the Galapagos Islands, rock iguanas in the Caribbean, and polar bears in the arctic.

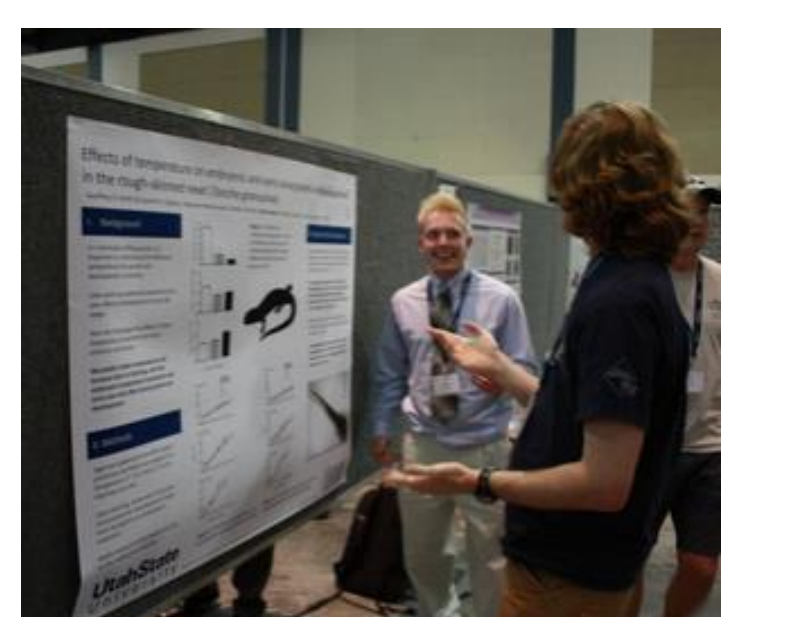
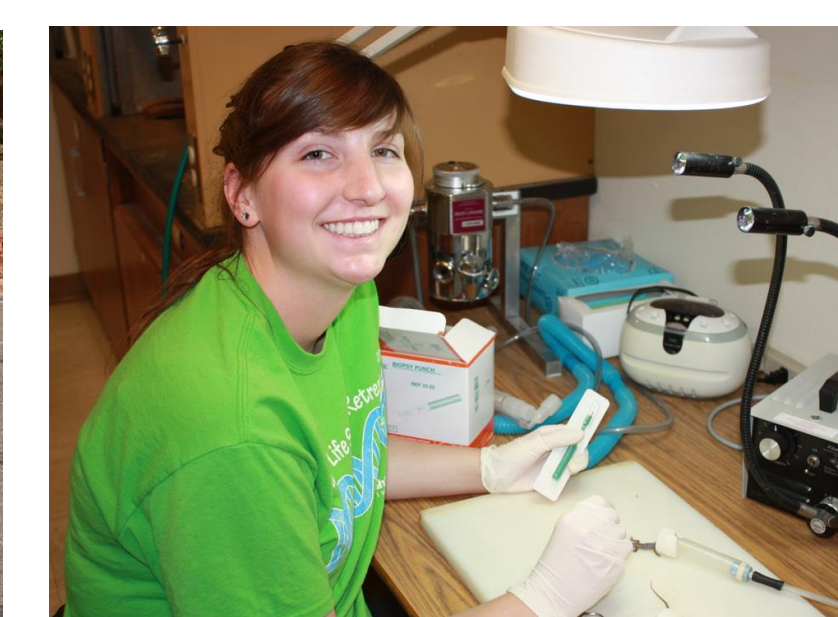
## Outreach



The French lab is involved in several types of community outreach. Dr. French and her graduate students give regular guest lectures in USU courses ranging from Herpetology to Human Physiology. Lab members volunteer to provide live reptile and amphibian exhibits to educational outreach programs in K-12 classrooms, at USU events, such as Science Unwrapped, and at community venues, including the Stokes Nature Center. While in the field, lab members are also active in engaging with local school groups to demonstrate current research. All of Dr. French's graduate students have served in leadership positions in the USU Biology Graduate Student Association or on the Biology Department Seminar Committee.



## Undergraduate Opportunities



Undergraduate researchers are an integral part of our lab. We regularly have 4-5 undergraduate students working in our lab at a given time. These students assist us with all parts of our research and may eventually work to develop independent projects depending on interest. Participating in authentic research is an invaluable component of undergraduate education, but also an essential experience for graduate students in terms of mentoring. Many of our undergraduates have moved on to graduate, veterinary or medical school, or research jobs thereafter.