

# NEWSLETTER

*By Dr. Ruanbao Zhou  
1st place faculty/staff entry in the "Science as Art" Competition*

## *Dean's Message*

DR. CHARLENE WOLF-HALL

Happy New Year! 2021 brings in many changes, and our college also continues to change and grow. Thanks for all you do for the college.

Congratulations to Associate Dean of Academics, Matt Miller, who became the Assistant Department Head for Chemistry & Biochemistry on January 22nd. Along with that change, Greg Heiberger's role changes from Associate Dean for Student Success to Associate Dean for Academics and Student Success.

Please be sure to check out our new Dean's Office space in Avera 131. We

will have the winning art pieces from the Science as Art competition on display soon. I was amazed by the talent expressed by all the submitters for this competition. We will do it again next year.

Spring semester typically feels very busy and like it goes by very fast. We continue to be vigilant to control the risks of COVID-19. Keep up the great work you are doing and know that you are appreciated for your efforts.

Before you know it, we will be preparing for commencement. For those in their final semester at SDSU, savor those moments that make this place special while you can. Enjoy the beautiful winter scenery, learn, succeed, experience, and stay warm.

## *Celebrating Work Anniversaries*

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*December 2020  
January 2021*

Mike Hildreth - 34 years  
Fathi Halaweish - 25 years  
Terry McCutcheon - 22 years  
Andrew Ellis - 19 years  
Robert McTaggart - 17 years  
Jess Mediger - 14 years  
Heike Bücking - 12 years  
Liping Gu - 12 years  
Samson Smith - 8 years  
Fangjun Li - 7 years  
Catherine Lockwood - 6 years  
William Matson - 4 years  
Charlene Wolf-Hall - 2 years  
Chen Huang - 2 years

# Awards & Recognition

Congratulations to **Jaime Lopez-Mosqueda**, Biology & Microbiology, for his invitation to serve on an NIH study section for R01 grants!

Congratulations to **Matt Miller**, Chemistry & Biochemistry, who was named Assistant Department Head! His new role began on January 22nd.



## Grants Awarded in CNS

NOVEMBER - DECEMBER 2020

**Parashu Kharel**, PI • Physics • SDSM&T / National Aeronautics & Space Admin • Designing Rare-earth Free Nano-Composite Magnet

**Xiaoyang Zhang**, PI • Geography & Geospatial Sciences • SDSM&T / National Aeronautics & Space Admin • Near real-time wildfire smoke detection and monitoring from satellite imagery using artificial intelligence

**Brian Logue**, PI • Chemistry & Biochemistry • SRI International / National Institutes of Health • The analysis of DMTS from rat & swine blood & tissue for evaluation of DMTS as a cyanide antidote

**Heike Bücking**, PI • Biology & Microbiology • North Carolina State University / US Department of Agriculture • Impact of the arbuscular mycorrhizal symbiosis on the physiological & molecular responses of mycorrhizal plants to potassium deprivation

**Hankui Zhang**, Geography & Geospatial Sciences, received the college's first-ever Wadsworth Research Endowment Award! He was chosen for his significant contributions in the field of remote sensing.

The **Society of Physics Students** recently earned two more awards, continuing a highly productive winning streak!

- 2019-20 Outstanding Chapter Award
- 2020-21 Chapter Research Award

*See more awards on page 3!*

## Media Coverage of the College

[SDSU Scientist uses satellite images to track growing seasons](#)

[Science matters in policy decision-making](#)

[SDSU Society of Physics Students chapter repeats as outstanding chapter](#)

[Record-setting wildfire season drastically increases emissions](#)



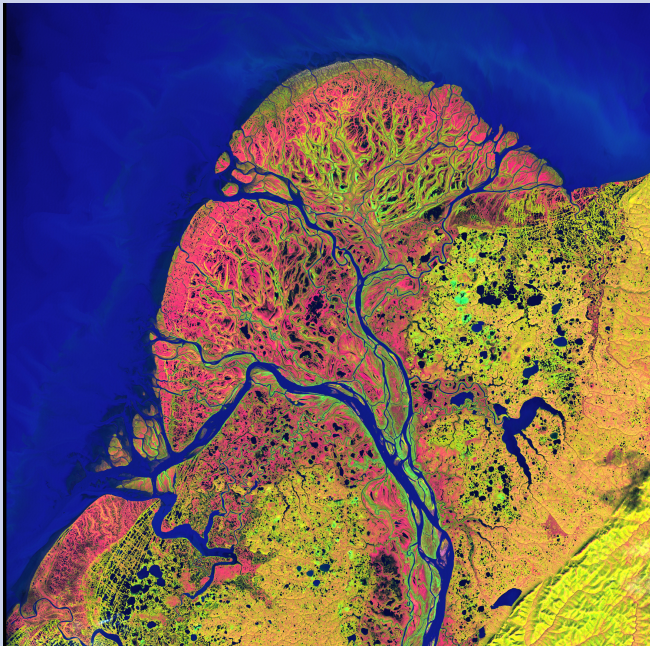


# *1st Annual Science as Art Competition*

**WHY?** The College of Natural Sciences is in its second year of existence and just moved into a permanent space in the Avera Health & Science Center! We needed help to decorate the new, bare walls. The hope is that the space will inspire all who enter to become scientists.

This will become an annual contest, with winning pieces rotating in and out of the Dean's Office. Those artists choose whether to have their piece returned to them, or auctioned off as a tax deductible donation at a yearly Hobo Week event for alumni and donors.

**WHAT?** This year, the challenge was to create an original piece that's complementary to the USGS EROS print below. The Geography & Geospatial Sciences Department generously donated the printing and framing to help kick start the contest and the new office !



**Parents:** Karly (Biology & Microbiology)  
and Jeremiah Ackermann

*January  
5th, 2021*

**Weight:** 7lbs, 13oz  
**Length:** 20.5 inches

**WHO?** There were two categories, with 1st and 2nd place awarded in each by popular vote.

## **Faculty / Staff winners:**

- 1st - Ruanbao Zhou
- 2nd - Kevin Cope

## **Student winners:**

- 1st - Sarah Engels
- 2nd - Derek Brandis

To see all 10 entries and their captions, [visit the album](#) on our Facebook page.

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## *Welcome, Caleb!*



# Student Club Spotlight: BMGSA

BIOLOGY & MICROBIOLOGY GRADUATE STUDENTS' ASSOCIATION

The BMGSA was established in 2013 by a group of graduate students whose goal was to form a bridge among students and create an extraordinary scientific community. Today, the club is open to all undergraduate and graduate students in the Biology & Microbiology Department!

This semester, the club is featuring student presentations every other Wednesday, starting on February 3rd. These will take place virtually and give students an opportunity to present their research project or proposal. Not only will this provide good practice, stipends of \$300 each will also be awarded to four students, dependent upon their evaluation scores! The money will help cover travel costs for students to attend and present at an external conference.



*Pictured: current executive committee and faculty advisor*

BMGSA participates in outreach activities throughout the year, sometimes to raise funds for the club or sometimes to contribute to the community. This past summer, for example, they volunteered with the Brookings Backpack Program. They also have a focus on personal growth for their members, whether it's enhancing leadership skills or networking with other scientists.

When they're not doing outreach or professional development, the club also has fun! There will be an ice cream social soon, among other social activities throughout the year. Contact Bikram Das, club president, to learn more.

## Science@SDState

## Club Info

**What:** BMGSA

**Where:** Zoom

**When:** 11am-12pm, every other Wednesday

**Who:** undergraduate and graduate students in the Department of Biology & Microbiology

### Club Leadership

- President: Bikram Kumar Das
- VP: Katelyn Hurley
- Secretary: Bhawandeep Kaur
- Treasurer: Ahana Majumder
- Historian & Safety Officer: Tahmina Hossain
- Social Chair: Aastha Acharya
- Faculty Advisor: Volker Brözel

**How to Join:** students can join the club by paying an annual fee of \$5

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## Seminar Zooms

You can watch the student presentations this semester! Tune in at 11am on 2/3, 2/17, 3/3, 3/17, 3/31, 4/7 and 4/21.

[sdstate.zoom.us/j/91545630179](https://sdstate.zoom.us/j/91545630179)



# Open PRAIRIE Data

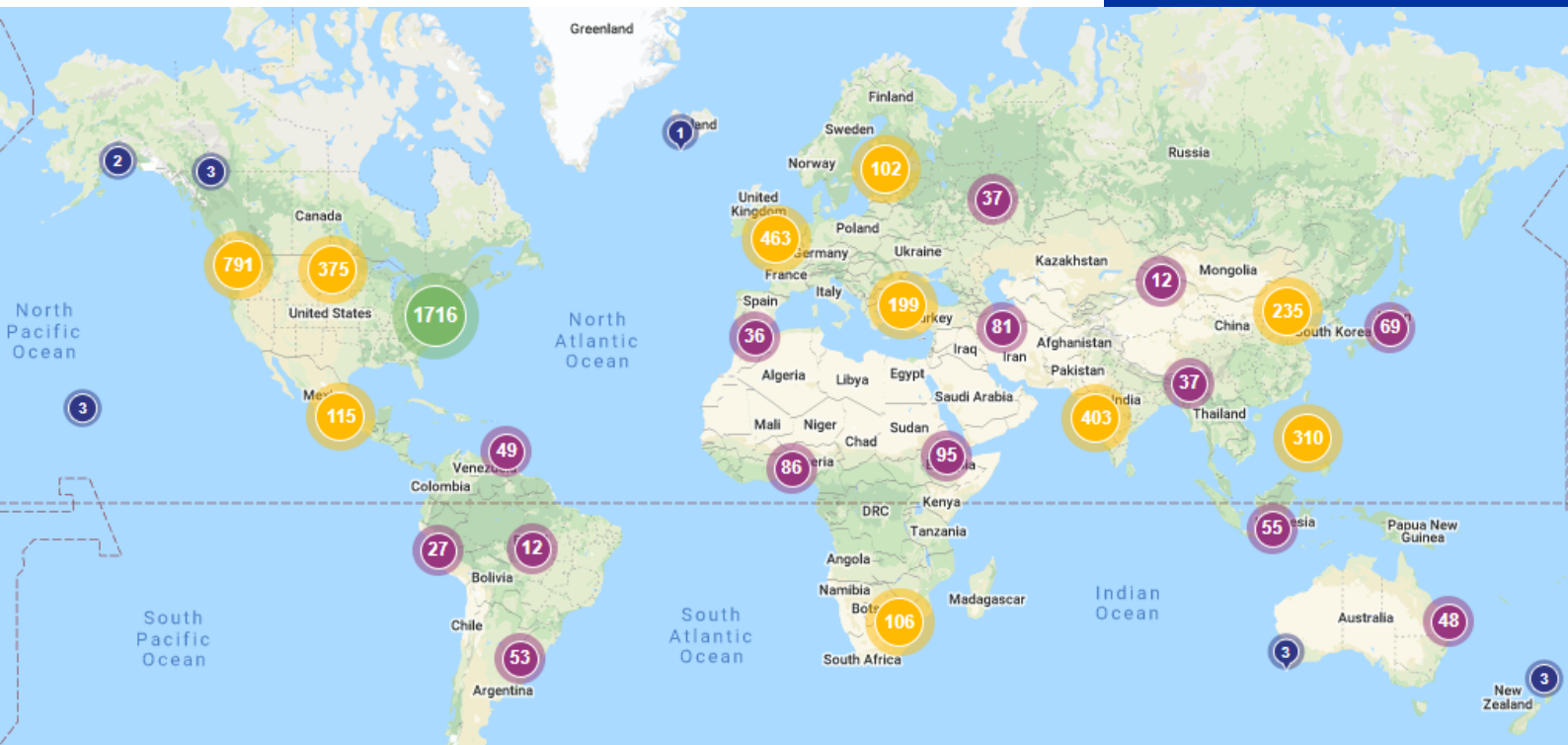
What is  
"Open PRAIRIE"?

NOVEMBER - DECEMBER 2020

Data across the whole College of Natural Sciences:

- 5,594 downloads at 568 institutions in 134 countries
- 32 new works posted, for a total of 881
- *Monitoring Pollen Counts and Pollen Allergy Index Using Satellite Observations in East Coast of the United States* was the most frequently downloaded piece at 492 downloads. This thesis is by past M.S. student Murat Cagatay Kececi, who was an advisee of Dr. Xiaoyang Zhang.

The **Open Public Research Access Institutional Repository & Information Exchange** tracks publications from within Natural Sciences throughout the year, showing where and when articles were opened all around the world.



## YEAR-END MAGAZINE UPDATE

The college's year-end magazine is hosted on Open PRAIRIE as well, and has been viewed 425+ times in 10 different countries since it was posted!

The countries include France, Germany, Finland, China, Czech Republic, Ecuador, Hong Kong, India, Mexico, and the US.

If you haven't seen it already, you can [read it here](#). Stop by the Dean's Office (Avera, room 131) to pick up a hard copy.

# Research Spotlight: Dr. Michael Hildreth

MIKE HILDRETH // PROFESSOR // DEPARTMENT OF BIOLOGY & MICROBIOLOGY

As a 7-year-old Iowa kid, my family did something unusual for us, we went on a vacation trip to the Black Hills. What I remember most from that trip was the buffalo herds. They were so amazing and I my obsession with them lasted for several months after our return. At that time, I never could have imagined that 48 years later I would be in the middle of a large bison herd collecting fecal samples. This bison obsession came back about 10 years ago with the invitation to use our research experiences associated with cattle and sheep parasite issues on the particular health challenges experienced while raising bison.

Monitoring and treating cattle parasite problems typically involves first immobilizing each animal in a cattle squeeze chute which adds stress and creates occasional opportunities for injuries to both cattle and human workers. Working bison through these squeeze chutes create extreme stress and frequent injuries. As such, most bison producers minimize the use of chutes as much as possible. This is particularly true for tribal herds where there is a desire to monitor and manage herd health issues with the least amount of human intrusion possible. For this reason, we have focused most of our research efforts on tribal herds. We have already been monitoring the level of parasitism at the herd level by microscopically counting the parasite's eggs that are continually released into excreted fecal pat which we can pick up from ground and isolate the eggs from. We have found several different types of parasite eggs that can be identify microscopically, but we have also needed to develop molecular techniques to differentiate the more pathogenic species from among those similar-appearing eggs whose species cause little pathology.

While these methods allow us to monitor the overall health of the herd, the bigger challenge is monitoring parasite levels in each animal. Without using a squeeze chute, it is currently not possible to identify the source for each fecal pat, but emerging technologies such as radiofrequency ID ear tags, facial recognition imaging and DNA fingerprinting, may soon allow us to do just that. Our current focus involves determining if the quality of bison DNA isolated from fecal samples are good enough to be used with current single nucleotide polymorphism (SNP) DNA fingerprinting.

It's taken a long time for me to get back to my "first love", but maybe this is fitting as I approach retirement from my current faculty appointment. I have enjoyed it all. Throughout the years, I've worked on a large variety of parasitology projects from shark tapeworms in the Gulf of Mexico as a graduate student to the primary mosquito vector for West Nile virus in South Dakota. My career has been built on efforts to rid ourselves of these unwanted "guests". One thing that I have learned for certain is that there is job security in this endeavor because in spite of our best efforts, most parasitic diseases are here to stay and that the best that we can do is to manage their most serious affects.



**Pictured left:** Dr. Hildreth collecting rectal fecal samples - neither participant is happy! **Pictured below:** Graduate student John McKenzie collecting samples from the ground - the bison are happy!





# Celebrating the Life of Dr. Auger

FEBRUARY 4, 1953 --- JANUARY 7, 2021

Dr. Donald Auger, Professor of Genetics, passed away this January after a long battle against cancer. He is greatly missed here at SDSU, and countless stories are pouring in about his famous Hobo Day lectures, passion for teaching, care for his students, and his memorable habit of lecturing from table tops! Kindness, wisdom, authenticity, inspiring, knowledge, and enthusiasm are just a few of the many positive adjectives used over and over to describe his legacy. Below are a select group of comments made by students and friends after his passing.

*I'll never forget one of the first days of the semester and seeing Dr. Auger climb up onto a table in front of the class. He was always such an engaging and caring professor, and provided me and my peers with a great education on all things genetics. I've rarely had professors that care as much as he did, or have continued to teach through all of the hardships that he did.*

*Dr. Auger always taught with energy and style. He was always jumping on tables to make his points. He taught me as much about the history of hobo day as genetics (which is a lot). He also always sported the best tan in January when the rest of us were starting to look see through. A great teacher, advisor, and jackrabbit.*

*He was a professor with a genuine love of the subject matter, and he was able to break information down in the most incredible ways. He was always enthusiastic and kept students on their toes. Over 10 years later and I can remember him teaching like it was yesterday.*

*Dr. Auger turned me onto the phrase, "So, that's cool" which he would so effortlessly use to tie his points together during his lectures. Unforgettable guy with seemingly endless knowledge of genetics, biology, and SDSU.*

*A memorial scholarship has been set up in Don's name. If you are able to donate, please consider [making a contribution here](#).*

*Don's full obituary is [here](#).*



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"The world needs more Dr. Augers."

"I won't forget the overwhelming kindness Dr. Auger showed me and my classmates!"

"He really sparked a desire in me to learn and explore possibilities."

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