UNIVERSITY OF MARYLAND 18 56

DEPARTMENT OF
# ANIMAL & AVIAN SCIENCES

SUMMER 2021

*"Sheep Management" student Tatiana Ferebee, holding one of ewe Lucy's newborn lambs, looks to Campus Farm Manager Crystal Caldwell for guidance during a physical exam. Terps taking the animal science course participate in the popular "Lamb Watch" experience, helping pregnant ewes give birth to baby sheep on campus.*

*Photo by: Stephanie S. Cordle*

# A Year Like No Other

Feature

Somehow, in-between countless zoom classes and meeting, virtual assignments, constant calendar reminders and seemingly endless emails to respond to, more than a year has passed since the University System shut down and transitioned to remote learning on March 13, 2020. It has been a year of challenges and innovation. While quarantine separated and isolated us, it also brought us closer together with family. It has created significant change while feeling like one very long day. Between the global pandemic, urgent calls for social justice, the 2020 election and a myriad of personal experiences, there is little doubt that 2020 – 2021 will be a period long remembered as a year like no other.

Within the academic environment of ANSC, many steps were taken to protect essential in-person staff and teaching, and in transitioning to remote learning. New course materials were created and new ways of delivering educational content were developed.

As we look forward to Fall 2021 with a return to more pre-pandemic normalcy, it is worth taking a look back and asking ourselves what has worked well over the past year, what has not, what we want to continue and what are we looking forward to now. The following are a few responses from across the department:

## Cole Shapiro

**Rising Senior, ANSC Peer Mentor**

**1. What was your experience over the past year?**

My classes were all online for the duration of the pandemic. The only time I was on campus was for my Teaching Assistant position and for my current job on campus.

**2. What do you think worked well over the past year?**

I think that given the circumstances, UMD did the best that they could ... I think that academically, classes did they best they could given their material but when it came to UMD's policies I think that they were fair.

**3. What would you like to see continue?**

I personally do really well with the lectures that get recorded so that I can review them later. I see the flaw with this strategy because there are students that will use this as an excuse not to come to class but I think that COVID forced teachers to provide more resources and examples since they didn't have time in class. I also think that despite all classes being online, it actually humanized professors more. We all had tech struggles. We all had to find new ways to stay engaged. It was a common thing to not know what the best method was.

**4. What were some challenges?**

I personally struggled the most in my chemistry labs ... the concepts were difficult enough for me in person when I relied heavily on GSS and office hours so having those all moved online made the transition all that more difficult for me ... I know plenty of my peers that really struggled to stay motivated and engaged with the material.

**5. What are you looking forward to in the fall?**

What I look forward to most is developing the bonds that I enjoyed so much in classes. I feel like what I value most in life is having good people to share experiences with, so although I have been able to do that with my family and apartment mates over the course of quarantine, I look forward to expanding that to people I have yet to meet. I also really look forward to going to sports and other events on campus again!

## Dr. Monica VanKlompenberg

**Lecturer**

**1. What was your teaching experience over the past year?**

This past year, I have taught all of my courses completely online.

**2. What do you think worked well over the past year?**

In the switch to online learning this year, I made a number of changes to help accommodate student learning. Some of these included organizational and course structure/design elements and using both synchronous and asynchronous course delivery which varied depending on the needs of the course. I created engaging activities that could be used via live class sessions on Zoom including Escape Rooms, Kahoot Trivia Games, and Google Drawing activities. I also was able to implement different online simulators in a few of my classes to enhance learning and created a video tour of CMREC Dairy in place of an in-person field trip. Additionally, I had the opportunity to have a number of guest speakers from across the country give guest talks and participate in our Career Seminars.

**3. What would you like to see continue?**

As we move back to in-person classes, I am looking forward to still keeping engagements in place with external guest speakers and the active learning activities as part of the flipped-classroom approach to teaching. I will also be keeping my course design and structure changes in place as these helped increase communication between myself and students and helped students stay organized and on top of the material.

**4. What were some challenges?**

Teaching a laboratory class online was challenging to provide the same experience as what we had in person. There was less chance for informal interactions with students which I tried to account for with online Zoom office hours and reflection assignments but this is still not quite the same. Group projects were also more challenging since students had different schedules and ways of approaching online courses.

**5. What are you looking forward to in the fall?**

I'm most looking forward to the informal interactions that exist in an academic environment which were hard to recreate in our virtual environment. Having students stop by my office or stop me in the hallways to chat about classes and life is always a highlight. It will also be great to have in-person social activities such as Cookoff, Fall Welcome and Ag Day! Lastly, I'm excited to have more interaction with students in the classroom during small group activities and group projects.

> "What I look forward to most is developing the bonds that I enjoyed so much in classes."

## Crystal Caldwell

**Campus Farm Manager**

**1. What was the campus farm experience over the past year?**

Overall, caring for the animals stayed relatively the same. However, I wasn't allowed to have my usual student Farm Volunteers for the first 6.5 months of pandemic restrictions, so I had to hire more Farm Crew. Even with those couple extra people (making 10 of us, including staff), not being permitted to have visitors on the farm ... means that it has been much quieter than normal here.

**2. What do you think worked well on the farm over the past year?**

As for the student experience (which is largely through classes) for Fall 2020 and Spring 2021 the instructors did a really excellent job designing safety plans, ensuring everyone was properly masked, and ensuring that they stayed socially distant whenever possible. I felt we were able to offer nearly all of the same educational experiences as normal, though to slightly fewer students than usual.

**3. What would you like to see continue?**

I would like to see people wear masks when they are ill with a respiratory ailment, presuming they cannot stay home. It would be nice if that became part of our national or regional culture.

**4. What were some challenges on the farm?**

Let me tell you that wearing a mask, especially an N95 mask, in a 90$^0$F+ hay loft while you and a few other people move and stack 400+ bales of hay and straw is not a good time and definitely a challenge! On a more serious note: there was the constant worry that someone would come down sick and, not only, not be able to make it to their next feeding shift, but potentially be away for 10 days or more, or worse ... People behaved responsibly and we were largely lucky in that regard.

**5. What are you looking forward to in the fall?**

It's going to be really nice having visitors here enjoying the farm. Being able to hold tours again, which are often attended by groups of children, will be a joyful "homecoming."

# Dr. Robert Peters Retires

January 7, 1980 marked Dr. Bob Peters' first day on the job at the University of Maryland as an educator, dairy researcher and Extension Specialist. It was a few days short of 41 years later that he retired. Dr. Peters spoke of always looking forward to going to work, "For that, I am forever thankful to the University and my colleagues, staff, students, as well as the producer and allied industry friends I have had the pleasure of working with during my tenure."

Early on, Dr. Peters never pictured himself becoming an academic or a research specialist. He grew up in southwest Minnesota on his family's 160-acre dairy farm and spent many years milking and tending their herd with his father. He studied animal science and physiology at the University of Minnesota, earning a bachelor's degree in 1973 and a master's degree in 1975. From there he went to Michigan State University for his Ph.D., under the tutelage of Dr. Allen Tucker.

It was at an annual meeting of the American Dairy Science Association (ADSA) in the summer of 1979 that he met Dr. Dick Davis, then chair of the Department of Dairy Science at University of Maryland, who encouraged him to apply for the Dairy Extension Specialist opening in his department.

During his first years in Extension, Dr. Peters was able to be very hands-on with the dairy farms in Maryland. One of his first projects took him all over the state to investigate an emerging problem of stray voltage from power lines affecting livestock. He consulted with farmers at over 50 farms and worked with the power companies to resolve several of the issues that led to stray voltage. He also conducted dairy research and trained graduate students in partnership with Dr. Max Paape at the USDA's Milk Secretion and Mastitis Laboratory. This collaboration was highly rewarding and provided data on mastitis control that was useful in his Extension education programs.

Throughout his 40 years working with the dairy industry of Maryland, Dr. Peters saw consolidation across the state and the number of farms decline. Technology and information dissemination changed, so too did Extension programming. He helped to create the Maryland Dairy Industry Association which has given dairy farmers a more substantial voice in politics, regional markets, and with the Maryland Department of Agriculture.

One of his later programs was launching the Breakfast on the Farm program in Maryland, an event designed to acquaint the general public with the inner workings of an active farm, and to build trust with consumers in the safety of food production, humane care of farm animals, and farmer's commitment to environmental stewardship.

In his last several years he began teaching more and found a number of students had limited experience with conventional agriculture. "You have to design your teachings for students that never laid a hand on a chick or a cow. It's kind of fun to be that person to introduce animal science to these students," he wrote in a Maryland Milk Moos Newsletter article. Dr. Peters offered some closing guidance:

> "Looking back, my advice for youth seeking a successful career and life in general is to follow your interests, build good relationships with friends, neighbors, and teachers, and seek out the best advice you can from those you trust. Search out your options. Key conversations will likely create opportunities that open doors for continued growth and development. Value the relationships you have in your life and work hard on your priorities. Once these basics are in place and with some faith in the future, the rest will often fall in place for success."

Dr. Peters is planning to continue his interest in international travel during retirement. He and his wife, Cathy, have a group of friends that have similar interests and have planned two trips this year, the first in early September with a Rhine River Cruise and a second trip in December through the Panama Canal and along the coast of South America, ending in Lima, Peru.

The faculty, staff and students of the Department of Animal and Avian Sciences congratulate Dr. Bob Peters on his long and successful career.





# 2020 & 2021 ANSC Department Awards

2020 AGNR Service Awards:

- **Sheryl Grey - 35 years of service (2020)**
- **Sandra Nola - 25 years of service (2020)**
- **Clare Capotosto - 25 years of service (2020)**
- **Kim Montague-Smith - 15 years of service (2020)**

2021 AGNR Service Awards:

- **Michael Mobley - 20 years of service (2021)**
- **Crystal Caldwell - 10 years of service (2021)**

2021 AGNR Inaugural Dean's Grantsmanship Awards:

- **Dr. Li Ma**
- **Dr. Chad Stahl**
- **Dr. Nishanth Sunny**

2021 AGNR Integrated Research and Extension Excellence Award:

- **Dr. Amy Burk**

2021 VA-MD College of Vet Med Lifetime Achievement Alumni Award:

- **Cindy Driscoll**

2021 Poultry Science Association Distinguished Poultry Industry Career Award

- **Dr. Roselina Angel**

Outstanding Class of 2020 - ANSC Undergraduate Student:

- **Julia Scardina**

Outstanding Class of 2020 - ANSC Graduate Student:

- **Chirantana Mathkari**

Outstanding Class of 2021 - ANSC and Overall AGNR Undergraduate Student:

- **Gabrielle Tedesco**

Outstanding Class of 2021 - ANSC and Overall AGNR Graduate Student:

- **Ian Chambers**

# Dr. Andrew Schiffmacher

Dr. Andrew Schiffmacher joined the Department of Animal and Avian Sciences in August 2020, as an Assistant Professor, though he has previously been associated with ANSC, having earned his Ph.D. and conducted postdoctoral research here. Dr. Schiffmacher's current research seeks to increase the fundamental understanding of mammary gland development and provide insight into improving animal and human health.

Dr. Schiffmacher grew up in Buffalo, NY and received his B.S. in Animal Science from Cornell University in 1998. He spent three years as a research assistant at the NIH National Primate Research Center in Portland, OR, where in 2001, he was a co-author on his first published article which described a study of how melanocortin receptors in the hypothalamus play a role in mediating food intake in nonhuman primates. It was published in the journal, Endocrinology. He then returned to Buffalo as part of a research team studying chronic obstructive pulmonary disease.

In 2010, he earned his Ph.D. in Dr. Keefer's laboratory examining how transcription factors direct early bovine embryo cells to either contribute to embryo tissue or placental tissue. Then he went on to work with Dr. Taneyhill as a Postdoctoral Research Scholar until 2018, researching how the loss of cell adhesion through degradation of cadherin proteins influences neural crest cells.

Before his return to UMD, Dr. Schiffmacher was a staff scientist at the National Institutes of Health for two years. "My first year [back at UMD] has been a great experience despite the challenges and delays caused by the pandemic," he said. "I am very enthusiastic to get my lab up-and-running and fully productive." He added, "It has also been exciting to meet all of the new faculty and reestablish previous connections with faculty from my Ph.D. and postdoc days as well."

# Dr. Andrew Broadbent

Dr. Andrew Broadbent comes to the Department of Animal and Avian Sciences from The Pirbright Institute, near London, England. He arrived at Maryland in January as an Assistant Professor. His background includes molecular virology and veterinary medicine, and his research focuses on animal viruses, especially those of economic importance to the poultry industry. He is excited to get set up and started with projects in his lab, be part of the UMD community, and start teaching next year.

Dr. Broadbent grew up in the North of England and attended the University of Cambridge to obtain his DVM in 2005. He then earned his M.S. in 2006 from the London School of Hygiene & Tropical Medicine, and Ph.D. in 2010 from Imperial College London, where he examined how viruses replicate and cause disease, and how to improve the design of vaccines.

Early in his career, from 2010 to 2014, Dr. Broadbent was a Postdoctoral Fellow working with emerging viral diseases in the Laboratory of Infectious Diseases at the National Institutes of Health in Bethesda, MD. He was at The Pirbright Institute from 2014-2020, first as a research fellow, then as the group leader of his own laboratory, researching avian viral diseases. During this time, he was also deployed to a diagnostic lab in Sierra Leone during the Ebola outbreak in 2015, and more recently to a National Health Service laboratory in the United Kingdom, due to COVID-19.

Looking forward to new opportunities as a Terp, Dr. Broadbent said, "I'm now happy to be back across the pond to continue to grow my research team and teach students at UMD."

# Dr. J. Eduardo Rico

Dr. J. Eduardo Rico joined the Animal and Avian Sciences Department as an Assistant Professor in January. His research focus is the influence of nutritional factors on metabolism, animal productivity, and welfare. Related to his core expertise, he is examining factors that maximize nutritional and health-promoting properties of bovine milk, particularly components in milk fat.

Dr. Rico described his first semester as a faculty member at UMD as "a semester of learning – beyond the limitations that COVID has put on everything, it has been an exciting process of adapting to professorial life and learning how to navigate the challenge of establishing a new laboratory. It has been lots of writing and planning."

Before UMD, Dr. Rico spent 2017 to 2020 as a Postdoctoral Research Associate at Cornell University, examining metabolic disorders and prevention in cows, and dietary ways to maximize nutritional value of bovine milk for humans. Before Cornell, he was a Postdoctoral Fellow at West Virginia University.

Dr. Rico grew up in Colombia, where he earned his B.S. in 2006 from the Department of Animal Production at National University of Colombia, in Bogota. He worked in the feed industry in Colombia for a few years before coming to the U.S. as a graduate student at Michigan State University. He received his M.S. in 2013 from MSU where his thesis looked at the impacts of feeding palmitic and stearic acids to lactating dairy cows.

Following his Master's degree, Dr. Rico earned a Ph.D. at West Virginia University in 2016 where he examined the use of lipidomics to study metabolic disease within the field of dairy science, discovering that sphingolipid ceramide was a biomarker of insulin resistance in dairy cattle. He also taught biochemistry classes while at WVU.

Dr. Rico's first published article was part of a project examining how the nutrition of grazing cows can influence milk quality for human consumption. "We looked at how different diet types are associated with the content of bioactive substances found in cow's milk," he said, adding "Looking back, I would say this work strongly influenced my interest in nutrition and scientific discovery."





# Recent Department Grants

## Using HDAC Inhibitors to Improve Swine Growth

**Dr. C. H. Stahl**
*USDA / NIFA*
$ 497,000
2020 - 2023

The long-term goal of this project is to improve the sustainability of swine production. Understanding the roles of HDACs in muscle and fat growth and development, which underpin growth efficiency is critical to improving the sustainability of swine production.

## Heme Trafficking and Recycling in Iron Metabolism

**Dr. Iqbal Hamza**
*NIH / NIDDK*
$ 1,934,000
7/20 - 6/24

The proposed goal of this R01 project is to elucidate the mechanisms for how HRG1 promotes heme tolerance and hemazoin formation at the macrophage-erythroid axis.

## Big-Data Genomic Investigation to Improve Dairy Cattle Health

**Dr. Li Ma and co-PDs**
*USDA / NIFA*
$ 500,000
2020 - 2023

The proposal addresses priorities of USDA NIFA Animal Health and Disease Program: genomic/genetic or whole-animal aspects of animal health and disease as well as disease prevention and control such as breeding animals for disease resistance. We target six common dairy cattle diseases with a specific focus on mastitis, the most common dairy cattle disease in the dairy industry.

## Transforming Reproductive Physiology

**Dr. Monica VanKlompenberg**
*University of Maryland Teaching Innovations Grant*
$ 10,500
7/20 - 8/20

The proposed goal was to modify our reproductive physiology lecture (ANSC446) and laboratory (ANSC447) courses to online for Fall 2020 due to COVID-19 by creating video lectures and interactive activities that included the creation of species Wiki as a team project, gamification activities, and the use of laboratory simulations to help students engage with the materials.

## Systems-based Integrated Program for Enhancing the Sustainability of Antibiotic-Restricted Poultry Production

**Dr. Shawna Weimer, with Dr. Tom Porter and Dr. Jonathan Moyle**
*University of Connecticut*
$ 647,000
9/20 - 9/24

This proposal's goal is to promote sustainability of broiler production by targeting three major system components in the poultry sector, namely Chicken, Humans and the Environment through an interdisciplinary team with ten targeted objectives.

## Incorporating Functional Genomics Data in Cattle GWAS and Genomic Selection

**Dr. Li Ma**
*USDA / NIFA*
$ 500,000
1/21 - 12/23

The overall goal of this proposal is to accelerate the genomic improvement of economically important traits in cattle, through integration of functional genoics and annotation data, genome wide association study and genomic selection analyses.

## Whole-Genome Analyses/ Selection to Increase Muscle Yield and Reduce Fillet Downgrading in Rainbow Trout

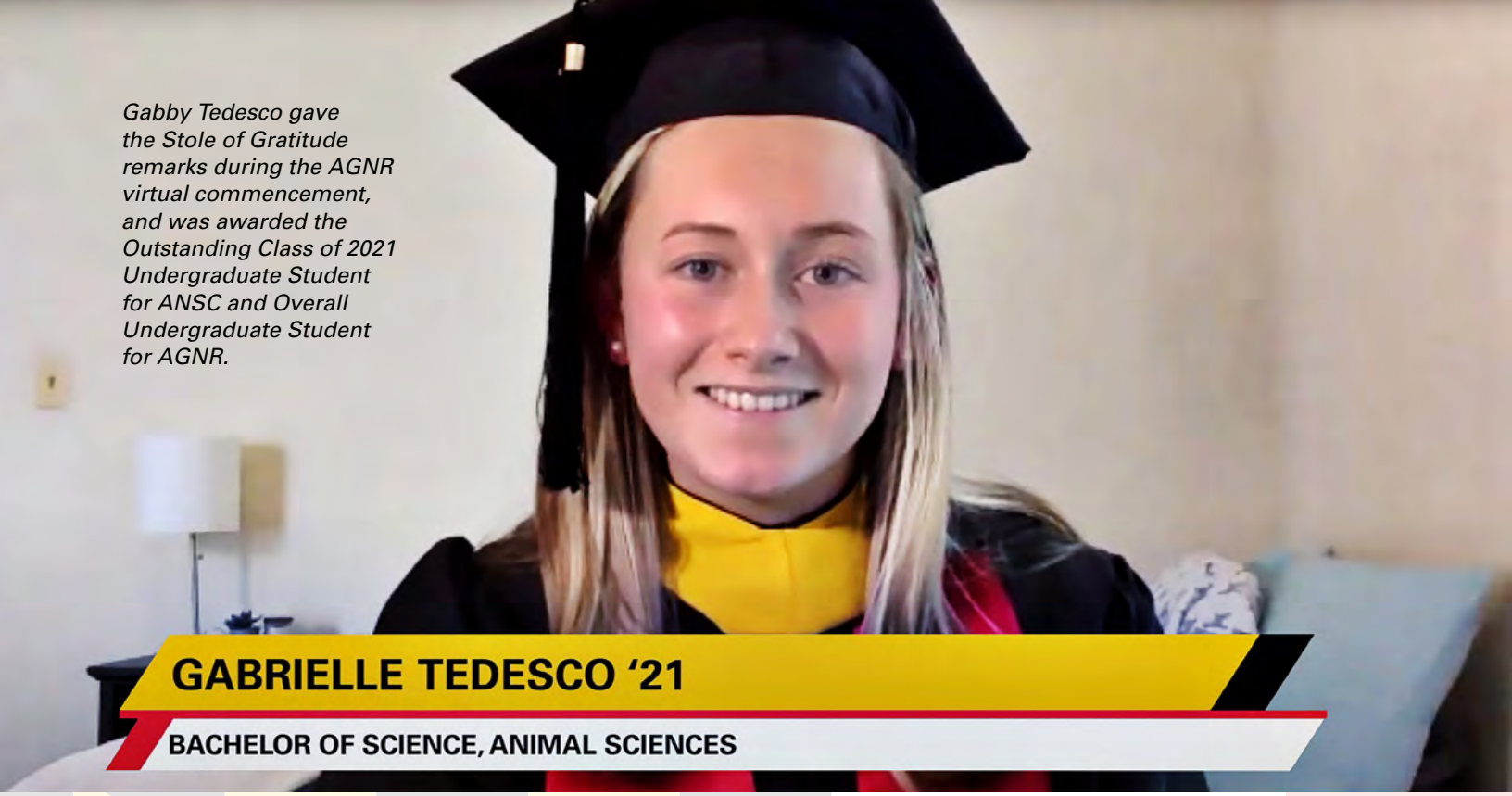
**Dr. Mohamed Salem**
*USDA / NIFA*
$ 500,000
1/21 - 1/25

Our goal is to utilize genomic analyses to identify genetic markers predictable of muscle-yield/quality and, more importantly, to implement genomic selection to achieve a higher genetic gain in these important traits in selectively bred fish genetic lines at the USDA/ARS and major commercial producers. The impact of applying genomic selection is that it can reduce animal selection time (from 2-3 years to 3 weeks) and increase production efficiency by 30-50 percent.

# ANSC Annual Symposium

When: **August 26, 2021** I Where: **Animal Sciences Building** I Keynote: **Dr. Nicholas Gabler**

We would like to invite you to the 34th Annual Symposium of the Department of Animal and Avian Sciences to be held on August 26 in person, in the Lecture Hall and concourse of the Animal Sciences Building #142 located at 8127 Regents Drive on the College Park campus. The all-day event highlights our department's ongoing research as presented by our graduate students. This year's keynote speaker is Dr. Nicholas Gabler, Professor of Nutritional Physiology at Iowa State University.




*Gabby Tedesco gave the Stole of Gratitude remarks during the AGNR virtual commencement, and was awarded the Outstanding Class of 2021 Undergraduate Student for ANSC and Overall Undergraduate Student for AGNR.*



# Congratulations to all of our **ANSC Graduates**

The College of Agricultural and Natural Resources Commencement Ceremony was held virtually on May 20, 2021. The University Commencement was held on May 21, 2021.

## Graduate Students - Spring 2021

Ian Chambers, Ph.D.
Paola Bonilla, MS
Tabitha Gregory, MS
Yasmin Mejia-Guevara, MS
Rachel Rha, MS

## Undergraduates - Spring 2021

Jordan Albom
Lauralee Do An
Ian Bemis
Zuzana Benicka
Ramya Boggavarapu
Emily Clark
Courtney Cline
Morgan Coley
Kevin Cooley
Maribel Cruz
Lorenzo Duldulao
Daniel Eisig
Raha Farahbakhsh Darabi
Renee Froehlich
Jordan Groseclose
Morgan Hallett
Rachel Harris
Cassidy Hedrick
Katherine Hernandez
Ellie Hidalgo
Lauren Hollidge
Ashley Houser
Morgan Jenkins
Caroline Jones
Nadia Khan
Rebekah Kline
Ella Lane
Olivia Manraksa
Esther Martinez Garcia
Alfred (Trey) Maybury
Jaclyn Mayer
Kelsey Miller
Maegha Naraian
Kyra Pair
Madison Pfarr
Mary Puig
Leanna Robinson
Christine Roviera
Kendal Scharch
Anna Schilling
Abbigale Sise
Laila Tabatabai
Gabrielle Tedesco
Jayson Thornton
Liudmilla (Milla) Tkach
Alejandra Umanzor Lovo
Anjali Vejendla
Molly Walker
Andrea Wilson

## Undergraduates - December 2020

Mary Ailise Agate
Dyon Dhavindra Basdeo
Sarah Rosemary Beyer
Juliana Csiba
Erin Marie Dunnigan
Amber Diane Hoover
Kimberly Ann Jones
Yoolim Kim
Ivy Elise Lewis
Jessica Mae Pezold
Deena Silton
Cody Alexander Silva
Henry Alfred Spies
Soranun July Vongpraomas
Monica Grace Louise Walton
Amber Elizabeth Warner
Maiah Kaisone Xayavong
Sonya Zejmis