ANOKA-RAMSEY COMMUNITY COLLEGE
A member of Minnesota State

Annual Student & Faculty OSCARS

Outstanding **S**cholarship, **C**reative **A**ctivities and **R**esearch **S**ymposium

Wednesday, April 28-May 5, 2021

Project Descriptions and Abstracts

Project Categories:
[1]Creative Performance/Presentation
[2]Humanities/Social Sciences
[3]STEM/Health Sciences

STUDENT PRESENTERS

1. All for Art Juried Student Exhibition[1]

Student Presenters	Titles	Mediums
Logan Mercier	Bestfriends	graphite drawing pencils on paper
Amber M Smith	Inter-dimensional Dreamscapes	oil on canvas
Emmalee Locke	November	charcoal and conte crayon on paper
Jun Tan	Kitchen	pencil, vine charcoal, willow charcoal
Danielle Fish	Lost Boot	charcoal
Jacqueline Keating	CROVIS	face paint and eyeshadow on face
Laura Daly	Route 63	digital photography
Katherine Bayliss	Am I cursed?	conte crayon on paper
Ryan Albrecht	Sunrise Shift	graphite on paper
Sara Stojevich	Pileated Woodpecker	acrylic on canvas
Aaron Fahnestock	Frontline	photography
Tatum Whiteford	Crowded Coast	acrylic on canvas
GeAn Merkouris	Taking Flight	colored pencils on paper

Katryna “K@” Hinkley	Passage	oil on Masonite
Quintessa Taft	Yellow	soft pastel, charcoal on paper
Ethan Emary Yonezawa	On Self	graphite on paper
Kaytlyn Syverson	Items for Ransom	charcoal with charcoal pencil
Robyn Peterson	Bronze Dragon	bronze
Melani Kompelien	Thoughts on My Grandmother	pastel on paper
Monica Sauer	Jar	charcoal
Dylan Stone	Untitled	ink on paper
Tracy Norman	Lake Superior Found Trash	recycled paper pulp, embossed with plastic fencing
Melissa Artus	Take a Walk	ink on paper
K Catten Ely	Natural Bridges DSP	digital photography

Abstract

The Visual Arts Department would like to announce our annual Juried Student Art Exhibition! This year's exhibition is virtual. Visiting juror Alison Hiltner selected the pieces to be included in this exhibition from a pool of submitted student art work.

2. AFA Portfolio Exhibit[1]

Student Presenter	Department	Faculty Mentor
Melissa Artus	ART	Rachel Breen

Abstract

I am an artist who likes to work in several different mediums, it depends on the subject matter and what I envision it looking like. I have been using oil paint on canvas lately, it has this beautiful texture to the art when the paint is applied in many layers. I have been working on nature scenes that provoke a sense of imagination bringing the viewers to a happy place that is beautiful and peaceful. I feel that because of the pandemic we are dealing with that my artwork should be calming, a place to escape too in a daydream, if only for a short time. It has been stressful on society watching the death toll rise from covid-19 losing friends perhaps or loved ones, the loss of jobs and the unstable economy. I strive to put some joy back into our souls and a smile on our faces by creating my art.

3. AFA Portfolio Exhibit - The Natural World Extended[1]

Student Presenter	Department	Faculty Mentor
Zoranna Berry	ART	Rachel Breen

Abstract

When it comes to art, I like to explore many mediums. However, my favorite medium is glass. I’ve always grown up around nature and going out to experience it is the best. Seeing new animals and new places is wonderful since I never know what I may see. I love animals and getting to see them in their habitat and watch them is amazing and a lot of fun. I like it when my family and I go for rides in the car or on ATVs and get to see different views of the landscape, whether there are animals or just a beautiful nature scene. For instance, when we went to the Badlands in South Dakota, it was beautiful and as we went deeper into the environment it was like teleporting to a new world. I do someday want to go to see Mesa Verde, which has an ancient city built into a mountain side or to Mexico to see the butterflies on trees. Both places sound especially fascinating. The artwork I have assembled revolves around nature and animals and shows a different view of that nature through a range of mediums and variables. My art media varies from photographs, glass and drawings. Some of my work is abstract and some is more realistic.

4. **AFA Portfolio Exhibit**[1]

Student Presenter	Department	Faculty Mentor
Kirstyn "Ryu" Fink-Wesala	ART	Rachel Breen

Abstract

I was young when my love for art began. My sister introduced me to Manga -- Japanese comics, and I fell in love with the style. It became a bit of an obsession, getting me in trouble at school for drawing instead of studying but that never stopped me. I am grateful to my mom who supported me when many parents might have ridiculed it. I have calmed down from then, but my drive and passion has not subsided. Art, to me, is an escape from reality. I can create worlds, beings, things, that do not exist in our own. I have the freedom to make the impossible. I enjoy imagining my own creatures and people. I also draw the characters and creatures for others, either to put my own spin on these creations or to bring to life what the individual who came up with the ideas could not do. It is fun and enjoyable for me to sketch out a character and let my imagination go wild. I do tend to hold some regard for science; Being able to make something unreal but have enough realism that it COULD be real is the kind of art I like to produce.

5. **AFA Portfolio Exhibit**[1]

Student Presenter	Department	Faculty Mentor
Elle Fish	ART	Rachel Breen

Abstract

I've explored many forms of art. I especially enjoy working in layers, particularly with digital, oil pastel, and charcoal media. I like seeing my subject build slowly, taking time to adjust and make changes. My work is primarily focused on people and other living beings. Recently I've become interested in the human psyche, and am learning to convey this in my art. Through my work now and moving forward I hope that my work will generate conversations about the viewers own life experiences and their understanding of the human psyche, such as mental health, loss, and dependency. I purposely leave my pieces open ended so that they are thought provoking and allow everyone to come to their own interpretation about their meaning. I hope viewers take away the sentiment that we all have emotions, and our experiences are unique from one another.

6. **AFA Portfolio Exhibit**[1]

Student Presenter	Department	Faculty Mentor
Dan Grimes	ART	Rachel Breen

Abstract

For me, art comes in many shapes and sizes. When I worked on sanding and finishing wood floors, there was art in that job. The same could be said for martial arts which I learned and then taught for 25 years. One of my favorite quotes is from Bruce Lee, "be water my friend, now you put water in a cup it becomes the cup if you put water onto a teapot it becomes the teapot, be water my friend." In the spirit of that idea, I have chosen to show works from different mediums. While drawing is my favorite medium, I find painting and sculpting with clay equally natural means for expressing myself. What is essential to me in this process, is respecting the properties of the medium I am using at the time. If I follow the Bruce Lee quote and "be water" then I should continue to become a better artist and stay inspired as I grow.

7. **AFA Portfolio Exhibit**[1]

Student Presenter	Department	Faculty Mentor
Katryna Hinkley	ART	Rachel Breen

Abstract

I am a visual artist who enjoys creating artwork with themes of nostalgia, whimsy, and occasionally social commentary. I make paintings, drawings, and digital art about being human. I use a variety

of techniques and media to create my artwork. From acrylic, watercolor, charcoal, and pen, to Photoshop, and Illustrator, I enjoy experimenting, challenging myself, and creating with energy. I'm extremely passionate about the arts and believe strongly in advocating for the arts. I also believe that creativity is one of the most valuable traits, because it is one that technology will probably never be able to replicate. This is why I have decided to pursue a degree in art education — I want to play a role in promoting creativity in the classroom, as well as outside it. Along with that, I want to teach about the impact of a creative hobby on mental health. The arts have helped me through a lot throughout my life and has helped me become the resilient person I am today. I believe everyone needs a creative outlet, and some people just need help discovering what theirs is. I do hope to inspire people to create art – even if they don't believe they are great at it. I believe that creation is a part of human nature and it is beneficial to mental health no matter a person's skill level or knowledge of the arts. Take a look around and keep on creating.

8. **AFA Portfolio Exhibit**[1]

Student Presenter	Department	Faculty Mentor
Sarah Johnson	ART	Rachel Breen

Abstract

I have always loved spending time outdoors. From a very young age, I was outside building bowls with mud and reflecting the bright beautiful colors of the trees, grass, and flowers in my scribbly drawings. As an adult, I have kept my love of bright colors and "mud" alive by working with photography and ceramics. The very first time I threw clay on a wheel, I was around 10 years old. I caught the bug. In the years that followed, opportunities to throw were few and far between. In my twenties, I have found ways to pursue this passion and push my abilities. I reflect my love of nature in my pieces using abstract shapes taken from memory or physical maps, often of places or things that bring me peace. Photography has helped me document these places and things while developing my love of the minuscule parts of objects I see every day. I am captivated by the gentle curve of flower petals or the cozy clusters of mushrooms growing on a mossy log. I have come to appreciate little things in life for the details rather than the whole. These seemingly unimportant pieces fill me with a sense of beauty and wonder that I strive to share with other people through my photos.

9. **AFA Portfolio Exhibit**[1]

Student Presenter	Department	Faculty Mentor
Eva Kordiak	ART	Rachel Breen

Abstract

In my work I explore many different ideas and like to experiment. I enjoy learning how to use and play with different mediums. I use paint, charcoal, clay, and others. Which I use to portray the topics of loss, death, and mortality. The main way I convey death or loss is through symbolism in my paintings and drawings. Death is a very intriguing subject for me to paint because it is a reminder of how little time we actually have.

10. **AFA Portfolio Exhibit**[1]

Student Presenter	Department	Faculty Mentor
Robyn Peterson	ART	Rachel Breen

Abstract

The works of art presented in my portfolio are what I consider to be the best crafted out of all the different mediums I studied while pursuing my Associates of Fine Arts at Anoka Ramsey Community College. My goal while at ARCC has been to take as many different art classes as I could, with the intention to discover my strengths and weaknesses in many different mediums, with the hope to find which artforms I might want to pursue in the distant future. I consider it crucial for an artist to broaden their horizons instead of just sticking to the artform they feel safe doing. I believe the mistakes one makes combined with positive occurrences is what makes a good learning experience.

When I make my art, I work intuitively. I like to experiment in the mediums I favor most, which currently is ceramics and stained glass, and explore different techniques in texture and repetition, with a goal of relaying my subject matter in a realistic manner. I like to create on a whim. It is not until the project is usually over halfway done when reflection, or a new idea that pops into my mind, is incorporated into the artwork. If the finished product is close to the idea it spawned from, I will consider that an achievement, if not, it is another session of trial and error to learn and build up from. I create works that revolve around some of my personal interests, like different interpretations of birds, solely for the personal enjoyment of seeing the results. My work is made to be pleasing to others as well as myself.

11. AFA Portfolio Exhibit[1]

Student Presenter	Department	Faculty Mentor
Faith Poissant	ART	Rachel Breen

Abstract

Throughout my life, my art has gone through many stages and has evolved as much as I have. I am still in the process of finding my voice artistically, but in the past years, I have made discoveries and strides I never thought I could make. I work in many different forms of media, but my favorites are oil paint, pen and ink, and digital drawing. Some elements of my art that I especially enjoy emphasizing are lighting, color, and dynamism. I use these elements in my work to add visual interest for the viewer, as well as to create pieces that are aesthetically appealing. The majority of the artwork I make is self-indulgent, either featuring characters from media that I consume or that I create myself. In this exhibition, I am showcasing some of my favorite pieces that I have made while pursuing my Associate's Degree at Anoka-Ramsey. Some of these have been created for classes I have taken, while others are work that I made for myself. I believe that it is important to showcase the variety and strength of my creative skills. This portfolio does not follow a certain scheme or have a larger theme behind it; These works are included to present the many forms that my creativity can manifest itself in.

12. AFA Portfolio Exhibit[1]

Student Presenter	Department	Faculty Mentor
Amber Smith	ART	Rachel Breen

Abstract

As an artist, I really try to make every piece of art that I make count because I want to enjoy the experiences and the various processes that go through my head and onto the paper or the canvas that I use. There was an artist that I became acquainted with before I started studying at Anoka Ramsey Community College, who said "You really have to be in the right vibe to create anything good. If you are producing work just to produce work then you're not really that artistic." I was sort of confused about what they meant at first; But, throughout the two years that I've been here, I've begun to understand the importance of taking time to stop and reflect on what I do well as an artist as well as, what I need to learn in order to accomplish future projects. I've learned how to use many different mediums and techniques during my educational experiences. I primarily work two-dimensional, but I do take advantage of the chances I get to work in environments where I can work three-dimensionally, especially when I can develop better muscle memory and get my hands dirty. I have loved being able to express myself artistically since I was a young child. Being artistic helps me convey what is often difficult to say literally. I know I'm not a professional artist yet, and I know that I have a long way to go. I make new work as often as I'm able and every piece that I finish is something I'm proud of making. In my opinion, the idealism of creativity and the process of creation itself are things for the world to see. It's a gift that shouldn't be wasted.

13. AFA Portfolio Exhibit[1]

Student Presenter	Department	Faculty Mentor
Dylan Stone	ART	Rachel Breen

Abstract

My art is an isolative meditation for me. I get a feeling of strength whenever I create something new, or something I never knew I was capable of. My initial style was using permanent marker, but rarely of portraiture as it was hard for me. More recently, I have added charcoal and oil painting to the mediums that help me let go of these feelings of anxiety. I am much more tolerant of representing my face in my art, and I have tried to fuse the previous style of ink with portraiture found in "Seeking Truth." Although I am constantly trying to compete with myself, I look at every piece of art I make as different from the last. My goals change whenever I switch mediums, and therefore, I focus on the art-making process rather than the end results. I have a strong sense of knowing when I succeed and when I could improve.

14. AFA Portfolio Exhibit[1]

Student Presenter	Department	Faculty Mentor
Quintessa Taft	ART	Rachel Breen

Abstract

This portfolio is a representation of my time spent as a student at Anoka-Ramsey Community College. These pieces showcase how I express my personal experiences through art and are a representation of how I navigate mental health issues and a need to seek solace. I find the most fulfillment in creating literal and figurative darker subject matter. Due to personal experiences I hope to create works that will open a conversation about psychological and emotional matters. While I enjoy working primarily with darker mediums and color palettes, I also enjoy incorporating the occasional hiccup of vibrant color. This represents an optimistic spin from a pessimistic perspective. I am currently in pursuit of my Associates of Fine arts degree from Anoka-Ramsey, and I plan to continue my education after I graduate.

15. Coon Rapids Campus Concert Choir - Resilience[1]

Student Presenter	Department	Faculty Mentor
CR Concert Choir	MUSC	Melissa Bergstrom

Abstract

Resilience was composed by Twin Cities-based composer Abbie Betinis and is published in The Justice Choir Songbook. She writes there: "Resilience is a mindset born in the hardest days, when you're scared or sad or tired, when progress toward your goal is slow, and the barriers seem impenetrable... and yet you keep going, because somewhere deep down you know that what you're fighting for will be so much better. As a three-time cancer survivor, I continue to learn about resilience." Concert Choir students were asked to submit photos of things that felt resilient to them - some submitted (awesome) selfies, others submitted quotes and photos. From the choir to you, we congratulate all the ARCC students, faculty, and staff who showed so much resilience this year!

16. Cambridge Campus Concert Choir - Don't Stop Believing[1]

Student Presenter	Department	Faculty Mentor
CC Concert Choir	MUSC	Dr. Randal Buikema

Abstract

A virtual performance of this beloved tune by the members of the Anoka-Ramsey Cambridge Campus Concert Choir under the direction of Dr. Randal Buikema.

17. Creative Writing AFA & Certificate Graduates Reading[1]

Student Presenters	Department	Faculty Mentors
Amara Isom Karypis—Fiction	ENGL	Jasmin Ziegler
Darbi Renaud—Fiction		Scott Wrobel
Janine Mosher—Poetry		Kate Kysar
Julia Kramer—Fiction		Jasmin Ziegler
Lucas Stone—Fiction		Tracy Youngblom
Mika de Sousa—Poetry		Paige Riehl

Abstract

In conjunction with the OSCARS, the English Department is celebrating our Creative Writing AFA and Certificate Graduates with a reading of their work.

18. One Day of the Year[1]

Student Presenter	Department	Faculty Mentor
Amna Mohamed	ENGL	Christine Stark

Abstract

This was a very exciting day of my life, where you get to take a journey with through time and experience the joy of a holiday celebrated by all muslims around the world. This story includes twists and turns and a lesson learned.

19. Anisa[1]

Student Presenter	Department	Faculty Mentor
Amina Moktar	ENGL	Christine Stark

Abstract

This is a story about a day that changed my life forever. This story is about my sister and her accident almost 10 years ago. I take you with me through time to show you the events before the accident, the incident, and its impact in the future.

20. Binary Code is "In" for the Modeling Industry: A Look at Digital Models by Lydia Moss (CC)[1]

Student Presenter	Department	Faculty Mentor
Lydia Moss	ENGL	Tracy Youngblom

Abstract

The rise of digital models poses some interesting questions, and I try to address them in my fall 2019 English class final project. One of the things I address is that digital models pose a risk to vulnerable individuals and thus should not be used.

21. Bavardages: A Performance by the Anoka-Ramsey Guitar Ensemble[1]

Presenter	Department
ARCC Music Department	MUSC

Abstract

Bavardages by Jürg Kindle from the Fall 2020 semester. The Guitar Ensemble at Anoka-Ramsey Community College is directed by Sam Bergstrom.

22. Gahu-Agbekor: A Performance by the Anoka Ramsey World Drumming Ensemble[1]

Presenter	Department
ARCC Music Department	MUSC

Abstract

This live recording session was made in the Anoka-Ramsey Community College recording studio in April of 2021.

The World Drumming Ensemble at Anoka-Ramsey Community College is directed by Dr. David Schmalenberger.

23. French Culture Project: Conseil pour voyager au Maroc[2]

Student Presenters	Department	Faculty Mentor
Uny Santamaria	FREN	Rita Newton

Abstract

Students are required to find information in the target language related to the French or German-speaking. They are free to choose a topic that interests them. They need to present their project in class at the end of the semester.

Uny is a top student in French. She grew up with Spanish as her first language. She clearly has a talent for learning languages and is interested in linguistics. She is also studying Hmong. The project she submitted in the French language, based on her experience traveling in Morocco, was so good, I urged her to present it during the OSCARS.

Uny has had to overcome a personal tragedy this year, as she lost her mother last December to the COVID-19 virus. Her maturity, determination and resilience have helped her to overcome this setback.

24. Living Life in the Great Plague of London: A guide to the happenings of 1660's England[2]

Student Presenter	Departments	Faculty Mentor
Bailey Rosdahl	HIST & THTR	Lisa Weaver

Abstract

This in-depth look at the life and times of 1660s London will take a peek into the politics, science, fashion, and most of all the Great Plague of 1665.

25. Detection of *B. dendrobatidis* in Minnesota wetlands' Anurans employing real-time PCR[3]

Student Presenter	Department	Faculty Mentor
Dylan Lee	BIOL	Paula Croonquist

Abstract

Amphibian populations around the world are decreasing due to increased environmental challenges. Over one third of amphibian species populations are facing a decline or even extinction. Some of these challenges include climate change, pollution, habitat loss, and infectious diseases caused by ranaviruses and the chytrid fungus, *Batrachochytrium dendrobatidis* (Bd). Bd is an aquatic chytrid fungus that causes Chytridiomycosis and parasitizes amphibians skin cells leading to a disruption in osmotic regulation and eventually death. This invasive fungus has caused the decline of 501 amphibian species world wide according to the Australian National University. Of these species, 90 have gone completely extinct and another 124 have been reduced by more than 90 percent. Analysis of specimens from museums shows that Bd has been in the Midwestern U.S. since at least 1888. Prevalence of Bd and ranavirus in anurans in the Midwest and specifically in Minnesota is not as well documented. A recent report found 33-36% (n=259 and 255 per year) incidence of Bd over a two year period in eight wetlands of Dakota County. Bd incidence was found highest in spring season and in wood frogs when compared to other seasons and species. Our preliminary data indicates lower Bd incidence (14.6-17.2%, n=263) primarily in Hennepin, but also in Anoka, Cass, Mille Lacs and Isanti counties. In addition, no statistically significant differences were found by seasons nor species so far. Our preliminary work employed end-point PCR upon genomic DNA extraction of mucous membranes swabs. The aim of this collaborative project is to expand the study to other counties to ascertain if similar Bd incidence by species and seasons are seen. We hypothesized that employing real time PCR may detect a higher number of Bd positives when compared to its end-point counterpart due to its higher sensitivity. We employed SYBR green as our

qPCR assay of choice to quantify Bd infection load. We successfully eliminated primer dimer amplification and are currently troubleshooting the assay to run all samples processed so far.

26. Phenotypic Characterization & Mapping of the B.1.3 Mutation in *D. melanogaster*[3]

Student Presenter	Department	Faculty Mentor
Shawn McCabe	BIOL	Paula Croonquist

Abstract

Drosophila melanogaster is a great model organism for genetic research. Their small size and short generation time make fruit flies easy to grow, maintain and work with in a lab setting. They have few chromosomes and the genes that control basic cell functions are conserved in humans making them suitable to study disease. The B.1.3 mutant in this study was generated in an ethyl methanesulfonate (EMS) genetic screen designed to identify genes that control cell growth and may be dysregulated in cancer. The aim of the project was to Identify the B.1.3 mutant phenotype in the fly mosaic eye and map its chromosomal location by carrying out genetic crosses to chromosome 2R deficiency mutant stocks and screening progeny for failure to complement. BDSC 25441 deficiency was the only stock which failed to complement mutant B.1.3. The deleted chromosomal region contains six genes. We hypothesized that gsb-n, one of the six genes in the region, carries our B.1.3 mutation, as its human ortholog PAX 3 is involved in cancer. Primers for all exons were designed for PCR and amplicons sent to sequence to identify the location of this mutation. Further studies are on the way to fine map this mutation by crossing B.1.3 to mutant alleles for all six genes in the region.

27. Gene Annotation of *Drosophila ananassae* Chromosome 4 contig 52[3]

Student Presenter	Department	Faculty Mentor
Mari McDonald	BIOL	Paula Croonquist

Abstract

The Dot Chromosome Project uses gene annotation software to annotate sections of the small fourth chromosome, the dot chromosome, in *Drosophila* species. The dot chromosome seems to be heterochromatic, meaning that it is firmly packed and typically genetically inactive. Active chromosomes are called euchromatic and are loosely packed. However, the dot chromosome shows a large amount of gene function. It's unclear why the dot chromosome, which appears heterochromatic, exhibits such a high frequency of gene activity. After the annotation is completed, various species of *Drosophila* dot chromosomes will be compared to learn more about them and how they function. The hypothesis for the Dot Chromosome Project is that the dot chromosomes of various *Drosophila* species will have a similarity that allows them to be expressed despite appearing heterochromatic. Tools used for the annotation included the Basic Local Alignment Search Tool (BLAST), the UCSC Genome Browser, gene predictors including GENSCAN and N-SCAN, as well as RNA-Seq data. In this annotation three predicted genes with orthologs in D. melanogaster are located in Contig 52 of *D. ananassae.* This investigation of contig52 of D. ananassae found that there were three genes predicted and all three genes could be mapped. The first gene, l(3)04053-PA was mapped at around 4500-1800, with no isoforms. It is read in the negative reading frame. Gene two, CG7369-PA also had no isoforms and was mapped at around 16800-19000. The final gene was more complicated to map, and was found to have eight isoforms, with two being identical. These were shown through multiple steps. First, FlyBase and BLASTX were used to show the genes that are orthologs within contig52. Then the Genome browser was used to find donor and acceptor splice sites, which were confirmed in the Gene Model checker. Dot Plots were also used to compare *D. ananassae* and *D. melanogaster,* as added evidence for the genes.

28. Loss of CFTR may promote aggressive phenotypes in colorectal cancer cells including ACE2 and TMPRSS2 expression required for SarsCov2 infection[3]

Student Presenter	Department	Faculty Mentor
Bailey Remer	BIOL	Paula Croonquist

Abstract

Loss of expression of the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) is required for development of cystic fibrosis (CF). Those with CF are at high risk for development of colorectal cancer. There is evidence that CFTR may act as a tumor suppressor in colorectal cancer. SARS-coronavirus 2 (SARS-CoV-2), has recently emerged, as the causative agent of new lung disease worldwide. This virus requires the ACE2 receptor and the serine protease TMPRSS2 for host entry and infection. A recent report provided evidence of ACE2 and TMPRSS2 transcript expression in colon cancer patient samples. In addition, our preliminary data showed expression of these transcripts in the parental T-84 colorectal carcinoma cell line at higher levels than the T-84 4C8 CFTR knock out clone. We hypothesized that CFTR loss promotes aggressive phenotypes in colorectal carcinoma cells including downregulation of ACE2 and TMPRSS2 transcript and/or protein expression. In addition, these cells may upregulate pro-inflammatory cytokines such as IL-6 and IL-8. We performed RT-PCR to assess expression of CFTR, ACE2, TMPRSS2, IL-6 and IL-8 at the transcript level and, immunofluorescence to validate CFTR protein expression loss by CRISPR/cas9 locus targeting. Our results demonstrate that CRISPR/Cas 9 treatment targeting the CFTR locus was successful in inhibiting protein expression in T-84 4C8 and IC3 compared to parental cells. Transcript expression of ACE2 and TMRSS2 does not seem to have decreased significantly in the knockout cell lines. However, quantitative PCR should confirm these findings. Our results have implications for colon cancer patients and their susceptibility to SARS-CoV-2 induced disease.

29. Annotation and Conservation of Adapter Protein *Skp1*-related A in the InR/PI3K/TOR Pathway[3]

Student Presenters	Department	Faculty Mentor
Alexandra Temmerath, Shawn McCabe, Alicia Wyntersend & Joshua Sell Lawrence	BIOL	Paula Croonquist

Abstract

Skp1-related A (SkpA) is an important gene in *Drosophila melanogaster* because it encodes a subunit of the SCF complex (Skp, Cullin, F-box containing complex), which regulates many cell systems including neuronal pruning during development, an essential part of the maturation of the nervous system.Since E3 ligase has an important function it is likely to be conserved across multiple species. Our objective, in order to determine the level of conservation of SkpA across several species of *Drosophila,* was to annotate genes located at varying distances from our reference species *D. melanogaster* and gather evidence to support their orthology. How does the function of SkpA in relation to the InR/PI3K/TOR pathway impact its conservation across different species of *Drosophila* throughout evolution? We hypothesized that since the role of E3 is required for neuronal development that the SkpA gene is conserved across several *Drosophila* species and that the closer these species are to *D. melanogaster* on the phylogenetic tree, the more conserved SkpA is. We predicted that SkpA would be the most similar to *D. melanogaster*, and thus highly conserved, in *D. simulans* and *D. sechellia* as they are located closest to *D. melanogaster* on the phylogenetic tree, less similar in *D. erecta* and the least conserved in *D. biarmipes*, as it is the furthest phylogenetically related. To determine the level of conservation of our target gene, SkpA, we first determined SkpA putative orthology in our four target species by gathering different lines of evidence such as synteny, RNAseq, splice junctions, when compared to our reference/subject species.

30. Conservation of Insulin like peptide 1 (*Ilp1*) Genes Across *Drosophila* Species[3]

Student Presenters	Department	Faculty Mentor
Rachel Schroeder, Beth Vlieger, Dylan Lee & Rhianna George	BIOL	Paula Croonquist

Abstract

Conservation of genes across species is a common theme in evolutionary genetics. The genus *Drosophila* is no exception. Between species we find that some genes are highly conserved while others are less so. *D. melanogaster* is one species that is researched throughout genetics and its genome is well understood. One specific gene found in *D. melanogaster*, Insulin-Like Peptide 1 (*Ilp1*), was the focus of our gene annotation through four different species, *D. takahashii, D. eugracilis, D. sechellia,* and *D. biarmipes*. One of the goals of the GEP project is to better understand the architecture of the Insulin-Growth Pathway. ILP1 genes are typically found in the Insulin-Growth Pathway in most invertebrate species and are located near the beginning of the pathway.1 Because of the evolutionary mechanism of selective constraint, it is hypothesized that *Ilp1*, will show lower selective constraint than a gene which is more downstream in the pathway, such as Tango. We also hypothesized that within the four species, the species which is closer in phylogeny to *D. melanogaster* will show higher percent identity than those species which are further in phylogeny. The *Ilp1* gene from each species was annotated in accordance with the GEP methods, comparing coding sequences, along with genomic neighborhoods. It was found that the closer in phylogeny the more similar the gene was to *D. melanogaster*. The percent identities were not as high across species for the *Ilp1* genes in comparison to Tango. Ultimately, there was greater divergence between species the further in phylogeny a species is from *D. melanogaster* and there was less selective constraint observed the further upstream a gene is in the Insulin-Growth Pathway. Of course, this is only a small sample and more work will need to be done to support the GEP's overall goal.

31. Identification and Annotation of the Ortholog of *D. melanogaster* Sin1 in *D. suzukii, D.eugracilis, D. biarmipes*, and *D. sechellia*.[3]

Student Presenters	Department	Faculty Mentor
Frances Abanonu, Hannah Martin & Brin Garcia	BIOL	Paula Croonquist

Abstract

Stress-activated map kinase-interacting protein 1, Sin1, plays a vital role in the insulin signaling pathway of *Drosophila melanogaster* setting the balance between the survival of a cell and the death of a cell. Sin1 genes lack introns and evidence could support a retrotransposition event. To investigate orthology and gene structure of Sin1 we compared *Drosophila* species, *D. suzukii, D.eugracilis, D. biarmipes,* and *D. sechellia* synteny to *D. melanogaster.* Sin1 was annotated in each species, and the results were verified by the Gene Model Checker. The Alignment of Sin1 in each species was then examined to determine in which species Sin1 was most similar to that of *D. melanogaster*. It was hypothesized that the closer relatives of *D. melanogaster* may have a higher amino acid similarity of Sin1, that the more distant relatives. If the gene structure of Sin1 differs in more distantly related species such as *D. suzukii, and D. biarmipes* and is similar in the more closely related species such as *D. sechellia, and D.eugracilis*, then the evidence of a retrotransposition event occurring in a recent evolutionary time may be suggested.

32. Investigating Upstream and Downstream Gene Orthologs of the Insulin Signaling Pathway in *D. sechellia*[3]

Student Presenters	Department	Faculty Mentor
Abby Laskowski, Long Dang, Collin Carlson & Anthony Cole	BIOL	Paula Croonquist

Abstract

The insulin signaling pathway is an important system that is involved in organism growth and glucose uptake. While this pathway is critical for life, relatively little is known about how the genes involved have changed over time and in species. This is the goal of the Genomics Education Partnership, as their general hypothesis is to examine how the locations and connectivity of genes in the insulin signaling pathway affect the evolution of regulatory regions. In this project the genes *Ilp7, Ilp8, Rheb*, and *Myc* in *D. melanogaster* were investigated using the GEP Genome Browser, BLAT alignment, NCBI BLAST, Gene Record Finder, and Gene Model Checker to determine if the identity of these genes were conserved with their orthologs in *D. sechellia*. All four genes were found to have orthologs in *D. sechellia*. Evidence was collected from multiple tracks to propose gene models with the specific coordinates of each exon and intron.

33. A Squirrel Tale[3,1]

Student Presenter	Departments	Faculty Mentor
Brin Garcia	BIOL & ENGL	Kristen Genet

Abstract

I wrote this story originally for an exam to explain evolutionary concepts in a creative way. I chose to write a children's book with illustrations and weaved in evolutionary concepts. I have since then made edits and added more illustrations.

34. Differences in Wing Spot and Apex Melanization Between Male *Pieris Rapae* butterflies in North American and European Populations During the Summer Season[3]

Student Presenters	Department	Faculty Mentor
Reece Lawlor Aurora Erickson Samantha Karels	BIOL	Kristen Genet

Abstract

We are comparing wing spot melanization differences in male butterflies in North America in comparison to those in Europe. To do this we are taking the data collected from students at many different colleges of the male butterflies found in both north America and Europe and seeing which, if either, have larger wing spots. We hypothesize that the US butterflies will have a greater average spot size because of the difference in climates and latitudes.

35. The Difference in Apex Melanization Between Male and Female *Pieris rapae* during Spring and Summer Within England[3]

Student Presenters	Department	Faculty Mentor
Sarah Foley, Grace Blair, Ryan Nguyen, Clea Mely & Tatyana Peshko	BIOL	Kristen Genet

Abstract

This study looked at the seasonally and sexually dimorphic characteristics of Apex Melanization in *Pieris rapae.* The images of the butterflies from the United Kingdom were obtained from

Integrated Digitized Biocollections. The sex of each butterfly was determined based on the sex dimorphism criteria. Their wings' apex melanization were then measured by using ImageJ. It was found that the wing apexes of the butterflies in the summer were more melanized than those in the spring, and that female specimens had more apex melanization than the male specimens in both seasons. In light of that, further study should conduct to investigate the effect the melanization on mating preference of *Pieris rapae*, or if different levels of melanization might increase their fitness.

36. Effects of Latitude on Wing Apex Melanization in Male and Female *Pieris rapae* Butterflies during the Summer[3]

Student Presenters	Department	Faculty Mentor
Sara Piatz, Jami Feist, Ivan Vlasyuk & Erin Tomzyke	BIOL	Kristen Genet

Abstract

This study is one of multiple projects done to observe and discover different adaptations of the *Pieris rapae* butterflies. This species, also known as the White Cabbage butterfly, has migrated throughout the globe and has adapted to a wide variety of environments. The objective of this study was to determine the relationship between latitudinal location and apex melanization. Previous research suggests a correlation between temperature and wing apex melanization (3). Based on this previous research, the hypothesis that the wing apex melanization and latitude and inversely correlated. This means that when latitude increases, wing apex melanization will decrease, and when latitude decreases, wing apex melanization will increase. This hypothesis was tested by obtaining digital butterfly samples from the IDigBio database from North America and Europe. Using the imageJ analysis, the area of wing apex melanization was measures and recorded. Results showed that melanization of females is not influenced by latitude, whereas male wing apex melanization and latitude are inversely correlated.

37. Comparing Female *Pieris rapae* Wing Apex Melanization in North America and Europe in Summer[3]

Student Presenters	Department	Faculty Mentor
Camryn Bliayang, Gaolia Thao, Richard Sieber & Jessica Kretsch	BIOL	Kristen Genet

Abstract

Examining female *Pieris rapae* butterfly melanization spots to see if there is a difference in the summertime for Europe and North America continents. Before moving forward with the research, producing the hypothesized theory that female butterflies in North America have a larger difference in wing spot and apex melanization, then the female butterflies should have more apex melanization due to Americas cooler climate. The *Pieris rapae* originally formed in Europe and traveled to North America. With the resources given, producing a method that could accurately give the data it provides. Using idigbio and ImageJ, it was easier to gather previous data and creating more in favor to the research. Looking at the apex, M3 and Cu2 melanization spots and found that the initial hypothesis was wrong, and Europe had overall larger melanizaton spots. *Pieris* project has done research in two of the continents that we are studying butterflies in, which is another step in gaining the results needed. With the data collected, the results showed that female butterflies from Europe have a higher wingspot melanization than North America. Further extensive research, finding studies that particularly gave data and information closely related to the current study handed an upper echelon of comparison. The implications from the research could provide further researchers the data they need. Measuring wingspot melanization could provide more information

on North America and European climate changes to *Pieris rapae*, which could potentially cause a global divergence. Overall, a larger sample size can help future researchers down the road.

38. Effect of Season on Wing-Tip and M3 Spot Melanization in North American *Pieris rapae* [3]

Student Presenters	Department	Faculty Mentor
Dylan Lee, Lydia Nesser, Elizabeth Giles & Breanna Hoffman	BIOL	Kristen Genet

Abstract

The experiment focused on the effect season may have on the wing melanization of North American *Pieris rapae*. Specifically, the apex melanization and anterior M3 spot that both sexes possess. The group hypothesized that season would influence the area of melanization, predicting that wing melanization area would increase in the spring compared to the summer to help maintain a constant amount of solar radiation absorbed throughout the year. To test this, images of North American butterflies from an online biocollection were sexed and categorized into the season in which they were documented. Using Image J software, the area of wing apex melanization and M3 spot of these butterflies were then measured. Overall, the deviation in the M3 spot melanization was not significant between the spring and the summer samples, but apex melanization was significantly increased in the summer sample compared to the spring sample.

39. Differences in Melanized Wing Spots between Male and Female *Pieris rapae* within Europe[3]

Student Presenters	Department	Faculty Mentor
Edwin Olmedo Vazquez, Brady Nordin, Grace Uhlenkott & Ma Thao	BIOL	Kristen Genet

Abstract

The purpose of this study is to find out if there is a difference in spot morphology between male and female *Pieris rapae*. With the use of iDigBio and ImageJ, we measured the fore-wing spots of all our butterflies. We hypothesized that sex does affect wing spots. The results show that there is a direct correlation between sex and wing spot, which supports our hypothesis.

40. The Effect of Latitude on Wing Apex Melanization in Spring *Pieris rapae*[3]

Student Presenters	Department	Faculty Mentor
Abigail Westendorf, Christos Robertson, Elyse Chasin, Alyssa Beise & Carly Caithamer	BIOL	Kristen Genet

Abstract

The presence of melanized areas of the wing is an effective thermoregulatory tool of the *Pieris rapae* butterfly. There are a number of factors that affect the area of melanization on the butterfly's wings, including sex and season. The *Pieris rapae* Butterfly is well distributed throughout the world and therefore along different latitudes. The focus of this experiment was on the effect of latitude on apex wing melanization. It was hypothesized that latitude would affect the extent of apex wing melanization because butterflies commonly use thermoregulation to absorb or reflect sunlight and the amount of melanization is dependent upon the environmental conditions. This led to the prediction that increasing latitude would lead to a greater area of apex melanization. Specimen images were collected from the iDigBio website and the apex wing melanization was measured using ImageJ. The adjusted R squared value of decimal latitude vs

left black patch area of male *Pieris rapae* was found to be 0.1105 suggesting a small positive correlation between the two variables. The multiple correlation coefficient was found to be 0.3388 suggesting that latitude is only a small factor among many that influence apex wing melanization. The reason that latitude may have a relatively small correlation with thermoregulation may have to do with the data set being collected from multiple different years as well as from two different continents. Further analysis of apex melanization according to latitude in specimens isolated by year or continent may show an improvement in correlation.

41. Undergraduate Research Project: Warthogs in Gorongosa and the effect of the community type[3]

Student Presenters	Department	Faculty Mentor
Sadie Kiefer Dina Clark	BIOL	Kristen Genet

Abstract

Warthogs in Gorongosa and the effect of the community type

42. Chloride Level Differences Depending on the Size of River[3]

Student Presenter	Department	Faculty Mentor
Mitchel Rhodes	BIOL	Margaret Guiney

Abstract

When we pass by rivers in our environment, we could spot two major differences regarding the size of the river. For one, smaller rivers more so than large rivers look kind of dirty. Larger rivers can be quite clear and free from discoloration and sediment build up.

43. The effects an animal-based protein diet and a plant-based protein diet can have on the environment[3]

Student Presenter	Department	Faculty Mentor
Miles Olofson	BIOL	Margaret Guiney

Abstract

In a two-week-long experiment, my group and I measured and recorded the uncooked weight of our protein servings to find the carbon emissions of our diets. We did this twice, first with our regular diets, the next with a plant-based diet. We compared the results to see the effects the two diets can have on the environment.

44. Food and Sustainability Research Project[3]

Student Presenters	Department	Faculty Mentor
Kelsey Alfaro, Jonathan Nordeen, Cali Fuerstenberg & Chelsea Galbreth	BIOL	Margaret Guiney

Abstract

In this project, we conducted an experiment to measure how a decrease of animal-based products in our diets would impact our Greenhouse Gas emissions. We logged our diets and converted the measurement of servings from our daily diets to greenhouse gas emissions. We logged one week in which we ate normally, and then a second week in which we decreased the meat and dairy servings in our diet and then measured the change between those separate weeks.

45. Food Sustainability Project[3]

Student Presenters	Department	Faculty Mentor
Lillian Erbstoesser, Gen Geigl & David Ullmann	BIOL	Margaret Guiney

Abstract

We worked on a project called Practice Sustainability Research, for our Environmental Science class. For this assignment we measured the effect our food has on the environment, measuring our greenhouse gas emissions. We did two different weeks, one measuring our normal diets (baseline) and then a week where we changed our diet to a more plant-based diet (change week) and recorded the data.

46. Screen-Nature Experiment[3]

Student Presenters	Department	Faculty Mentor
Mitchel Rhodes, Nora Sabah, Kristina Boehme & Taylor Schmidt	BIOL	Margaret Guiney

Abstract

Sustainability Project for Environmental Science

47. Turing Machines[3]

Student Presenters	Departments	Faculty Mentor
Jake Shufelt, Sammer Hassan & Joseph Kuzko	CNET, CSCI & MATH	Megan Breit-Goodwin

Abstract

Turing machines are considered by many to be the blueprint and foundation to modern computer architecture. Turing demonstrated the immense power of a universal computational machine, simple in design yet capable of computing any computable number. Modern computers we use every day utilize the von Neumann architecture which builds upon Turing's original Turing machine concept.

48. The Monte Hall Problem and the Bayesian Brain Hypothesis[3]

Student Presenters	Departments	Faculty Mentors
Derek Carlson, Jacob Shaheen & Trever Madsen	CNET, CSCI & MATH	Dr. Megan Breit-Goodwin & Tristan Sprague-Williams

Abstract

Our poster takes a look into the field of probability specifically Bayes theorem by first looking at how a controversial question called the Monty Hall problem came to public focus. We also look at the counter intuitive results and then ask ourselves could these types of calculation be going on in the human brain.

Keywords: probability, Bayes theorem, Monty Hall problem, Bayesian Brain Hypothesis.

49. Recursive Algorithms & Program Correctness[3]

Student Presenters	Departments	Faculty Mentors
Evheni Berber, Avani Dhalgara Ibrahima Diallo Jafaar Abdulraman	CNET, CSCI & MATH	Dr. Megan Breit-Goodwin & Tristan Sprague-Williams

Abstract

Recursive algorithms and program correctness are a big part of computer science. Recursive algorithms are used to solve problems that can be broken down into smaller instances of the same problem. Program correctness is when the program gives the correct output for the given input. In our presentation we will focus on an example of a recursive algorithm, and we will prove that the recursive algorithm is correct.

50. Graph Coloring and the Chromatic Number of a Tree[3]

Student Presenters	Departments	Faculty Mentors
Lauren Weiland & Mitchell Skowronek	CNET, CSCI & MATH	Dr. Megan Breit-Goodwin & Tristan Sprague-Williams

Abstract

Planar graphs and graph coloring stem from the area of mathematics known as graph theory. In this study we focus coloring a tree, a type of planar graph with no cycles, and prove that trees have a chromatic number of two, meaning that trees only need two colors to color each vertex without having two adjacent vertices being the same color.

51. How Karnaugh Maps Can be Used to Minimize a Logic Circuit[3]

Student Presenters	Departments	Faculty Mentors
Jake Hustad, Brysen Warner & Matthew Singleton	CNET, CSCI & MATH	Dr. Megan Breit-Goodwin & Tristan Sprague-Williams

Abstract

The topic of our project is Boolean circuitry, and in this poster, we discuss how and why it is important to minimize a circuit. Computer circuits are made up of input signals and wires connected to logic gates that can be represented as Boolean expressions. It is beneficial to minimize the number of gates in a circuit to build a more reliable circuit, save costs, and increase the speed at which a computer can complete a task.

52. A Time Complexity Analysis of Dijkstra's Algorithm on Sparse Graphs[3]

Student Presenters	Departments	Faculty Mentors
Abdullahi Abdullahi & Ashwin Wariar	CNET, CSCI & MATH	Megan Breit-Goodwin & Tristan Sprague-Williams

Abstract

Time complexity is a vital component in computer science, specifically in algorithms. The time complexity of an algorithm refers to the amount of time required for an algorithm to solve a problem. An important algorithm in computer science is Dijkstra's algorithm. Simply put, if given a weighted graph that measures time, distance, money, or other factors between two vertices, the algorithm will help find the "shortest-path" between any two vertices on a weighted graph. In order to predict the shortest path in a graph with hundreds and thousands of vertices, it is important to know the time complexity of Dijkstra's algorithm to know how long it would take to find the shortest path. Illustrating a simple example of the algorithm, the time complexity of Dijkstra's algorithm was O(n^2), meaning that given n vertices, it would take n^2 amount of time to find the shortest path between any two vertices in a worst-case scenario.

53. An Exploration of Cryptography: Data Integrity, Information Secrecy, and Data Security [3]

Student Presenters	Departments	Faculty Mentors
Mahmoud Salem, Joe White & Tim Harris	CNET, CSCI & MATH	Megan Breit-Goodwin & Tristan Sprague-Williams

Abstract

Cryptography is a very important aspect of nearly everything that happens in the online world. The practices and techniques in cryptography must improve as time progresses to ensure that digital environments and information stored on the internet remains safe from people and organizations with malicious intent. The purpose of our project was to simulate information being encrypted, show the information after encryption, and decrypt the information using the RSA algorithm. By showing how this process works we are able to solidify the general person's understanding on how safe their information is when being sent throughout the web.

54. An Application of a Minimum Spanning Tree Generated with Kruskal's Algorithm [3]

Student Presenters	Department	Faculty Mentors
Matt Zimmerman, Nhan Vo & Jared Woodberry	MATH	Dr. Megan Breit-Goodwin Tristan Sprague-Williams

Abstract

Spanning trees are an important aspect of graph theory and have many practical applications in the fields of mathematics and computer science. Several algorithms have been developed to create and work with spanning trees including Kruskal's algorithm. Spanning trees are used in many ways and are important tools for computer scientists and mathematicians.

55. Wrestling Weight Classes [3]

Student Presenters	Department	Faculty Mentor
Justin Roble & Spencer Browne	HPER	Jill Gromberg

Abstract

Health problems with cutting weight in wrestling

56. Position Stand: Efficacy and Safety of Creatine Supplementation for Increasing Muscular Hypertrophy [3]

Student Presenters	Department	Faculty Mentor
Ben Weisser & Afton Kuehndorf	HPER	Jill Gromberg

Abstract

The use of the ergogenic aid known as creatine for increasing muscular hypertrophy has been a topic argued for decades. Creatine is a naturally occurring chemical in the human body that is predominately stored within muscle cells as phosphocreatine. Phosphocreatine is an important component of the ATP-PCr energy system. This energy system is responsible for supplying energy during activities of high intensity and low duration. Researchers have speculated that creatine has a direct relationship with certain physiological variables related to improvements in skeletal muscle function. Claims against creatine have contested that its supplementation elicits similar muscular hypertrophy in individuals who are on the same training program. These claims state that individuals who supplement creatine will not exhibit greater increases in muscular hypertrophy compared to individuals who do not supplement creatine if both individuals are on the same training program. Other claims have argued that the supplementation of creatine may cause possible health risk. Also, claims have suggested that creatine supplementation results in dehydration. What current research has suggested is that muscular hypertrophy is increased due

to creatine supplementation. Furthermore, the effects of creatine in promoting muscular hypertrophy have been supported by hundreds of literary studies, and these studies have indicated that its supplementation is safe and effective. In this paper, diligent assessment of the safety and efficacy of creatine supplementation regarding muscular hypertrophy will be conducted as well as common arguments against its supplementation which include possible health risks, adverse effects on an individual's hydration status, and its ineffectiveness in individuals training at the same volume and intensity.

57. Multi-Sport Participation vs. Sport Specialization in Child Athletes[3]

Student Presenters	Department	Faculty Mentor
Megan Giftakis, K'ryn Bunker & Brandon Bergstrom	HPER	Jill Gromberg

Abstract

This presentation will discuss the benefits of children's participation in multiple sports rather than focusing on only one sport.

58. French Culture Project: Conseils pour voyager au Maroc

Student Presenter	Department	Faculty Mentor
Uny Santamaria	FREN	Rita Newton

Abstract

Students are required to find information in the target language related to the French or German-speaking. They are free to choose a topic that interests them. They need to present their project in class at the end of the semester. Uny is a top student in French. She grew up with Spanish as her first language. She clearly has a talent for learning languages and is interested in linguistics. She is also studying Hmong. The project she submitted in the French language, based on her experience traveling in Morocco, was so good, I urged her to present it during the OSCARS. Uny has had to overcome a personal tragedy this year, as she lost her mother last December to the COVID-A9 virus. Her maturity, determination and resilience have helped her to overcome this setback.

59. The Healing Stick[3]

Student Presenter	Department	Faculty Mentor
Chuck Clark	IHH	Valerie Lis

Abstract

A healing journey through forgiveness and love.

60. MN Potter's: Sharing the Fire[1]

Presenter — **Department**

ARCC Art Department — ART

Abstract

"Minnesota Potters: Sharing the Fire" provides a view into the lives and work of eight Minnesota potters - four pairs of artists whose unique relationships celebrate some of the many ways that knowledge, experience and spirit is passed from person to person in this field. This documentary tracks the amazing sphere of these potters' stories with each other - exposing the challenge of becoming and subsisting as a practicing potter, detailing many of their intriguing processes, and with the clear voice of art critic and cultural specialist Janet Koplos, offering insight into the bigger Minnesota potters' narrative.

61. The Labor We Wear Installation[1]

Faculty Presenter — **Department**

Rachel Breen — ART

Abstract

“The Labor We Wear” highlights the relationship among the garment industry, garment laborers, and fashion consumers. In utilizing used clothing to create her installations, Rachel Breen holds us, the consumers of fashion, complicit in the troublesome cycle of garment production and consumption—from dangerous factory conditions to problems caused by textile waste. Breen makes these relationships visible in order to find ways to break the toxic chain.

62. The Shapes Taken[1]

Faculty Presenter — **Department**

Rachel Breen — ART

Abstract

Our clothes and the fabric scraps I collected from huge piles outside of garment factories in Bangladesh, represent bookends. In between these bookends are women who are laboring in unsafe sweatshops and are grossly underpaid. It is through the complicated pathway of a supply chain and the global economy that our clothes connect us to the labor of these women. These drawings incorporate fabric scraps from Bangladesh and reference complex garment supply chains in the form of an abstract map. These works seek to make transparent the very opaque and complex system by which our clothes arrive to our bodies.

63. Surprise Party - an Unexpected Installation[1]

Faculty Presenter — **Department**

Aaron Dysart — ART

Abstract

Last year, the MIA invited the artist community to propose surprise projects to help celebrate the museum’s 100 years of wonder and counting. This installation by Aaron Dysart is the first of several artist-designed birthday surprise projects to happen throughout the year. Animating the Fountain Court with zillions of disco-light sparkles, it’s an immersive installation that, like the museum itself, only comes alive with your participation. When you pass through the room, an infrared sensor detects your movement and triggers LED lights to blast the slowly rotating 24-inch disco ball suspended from the ceiling.

64. Watershed[1]

Faculty Presenter | **Department**

Aaron Dysart | ART

Abstract

Created by local sculptor Aaron Dysart, "Watershed" was a time-based sculpture crafted from frozen ice water from the Mississippi River. Dysart used actual bathymetric data collected by the Mississippi Watershed Management Organization to create a 3D mold of the river bottom north of the Upper St. Anthony Falls Lock and Dam. He then filled the molds with river water, allowed them to freeze and assembled them into a 3D model of the river.The length and width of the river were proportionally accurate, while the depth was magnified in order to better reveal the contours of the river floor. The sculpture was allowed to melt and then re-cast several times during the course of the exhibition. In the artists's own words: "The unseen valley that usually lies under the surface appears as a mountain range. Water becomes land, material becomes object, and flux becomes static. As the day progresses and the sculpture turns back into water, our desire for permanence and categorization is laid bare. The viewer is left to comprehend the system as the water travels back to the river."

65. Attention[1]

Faculty Presenter | **Department**

Pao Her | ART

Abstract

Pao Her's exhibition of new photographs, Attention, focuses on the importance of military service to Hmong-American identity. In the 1960s, the CIA enlisted Hmong and Laotian soldiers to fight a secret war alongside the conflict in Vietnam, soldiers the United States still does not recognize as U.S. veterans despite their sacrifices on behalf of the U.S. The men that Her has photographed, in the tradition of classical paintings of generals, are veterans of that war—excluded from subsidized health services, refused the right to be buried in national cemeteries, and disqualified from wearing U.S.–sanctioned military uniforms and medals.

66. Warren MacKenzie - A Potter's[1]

Faculty Presenter | **Department**

Mark Lambert | ART

Abstract

At age 90, MacKenzie maintains an active schedule in his studio and continues to hold international influence in the field of ceramics. Warren MacKenzie: A Potter's Hands presents a cinematic window into the life work and philosophy of this remarkable potter.

67. Paul[1]

Faculty Presenter | **Department**

Anthony Marchetti | ART

Abstract

In 1945, my maternal grandmother and her family fled Hungary as Russian armies advanced from the east. They traveled through Austria to Germany, eventually settling in a displaced-persons camp in Munich. There, my grandmother met and became engaged to a Hungarian man named Paul. When sponsorship to the U.S. opened, my grandmother left with her family, certain her fiancé would follow. During transatlantic passage, my grandmother was ill with symptoms of early pregnancy, ultimately leading to my mother's birth. My grandmother's fiancé never came to America nor did they meet again. This work is an attempt to visualize and reconstruct a past and a world that no longer exists except in relatively few place markers, carried objects, and memories.

68. James Weldon Johnson Artists Residency[1]

Faculty Presenter — **Department**

Laura Migliorino — ART

Abstract

"Advancing the Legacy: Laura's Shooting Studio Tour, Part 1 of 2, 2019, James Weldon Johnson Foundation" with Rufus Jones and Laura Migliorino. Bard College at Simon's Rock, Great Barrington, MA

69. My Story, Your Story, Our Story[1]

Faculty Presenter — **Department**

Laura Migliorino — ART

Abstract

A documentary about the creation of the Anoka-Ramsey Community College Mural.
A project funded by The Minnesota State Arts Board

70. Transcription 846 Blues[1]

Faculty Presenter — **Department**

Laura Migliorino — ART

Abstract

Transcription 846 Blues is a music video collaboration between Rufus Jones, a New York based blues musician and Laura Migliorino Art Department faculty. As a black man Jones's reaction to the death of George Floyd was personal. He expressed his grief and fear in the song Transcription 846 Blues. Jones and Migliorino then collaborated on the video by setting her photographs of George Floyd Square to the music. The result is a powerful sensory experience.

71. The Year Long Landscape[1]

Faculty/Staff Presenter — **Department**

Jes Shimek — ART

Abstract

I am a photographer, documenting memories of our landscapes. I photograph what we leave behind, our trails left on this earth, what appears, what remains. Using my camera I capture the stories of our fragile home, witness the changes, and attempt to tell her story. Much of my work focuses on water. I am drawn to it. Our bodies of water hold memory of the space they occupy, how it has changed over the centuries, how the surroundings change. They hold the memory of our footprints on this earth, the memories of centuries of inhabitants within and without. In one of my recent projects I documented a year of Lake Superior's memories. These photographs were taken with medium format film from the same vantage points at four locations along the north shore. I photographed each location once per month from May 2018 through May 2019. The final journey to these locations was embarked on one year from the date I started, completing the cycle of one year. To create the final images, I layer these photographs on top of one another. Through this process I create an image of one full year of memories of that water and land. In May 2020 I began a similar project documenting a year of Mississippi River memories. I chose six locations between South St. Paul and Elk River to photograph. I am in the process of photographing each location once per month for one year. At the end of the year, I will create compilations images of each location, each image being one full year of memories of that water and land.

72. Making Sense of Music History: Meaningful Analysis[1]

Faculty Presenter — **Department**

Melissa Bergstrom — MUSC

ARCC Music faculty/Music History teacher

Abstract

How can you make sense of music from thousands of years ago or last summer? Informed listening and a wee bit of research can unlock a composer's intent and a work's emotional impact – see how in a combination of student work and faculty-led conversation.

73. World Drumming Ensemble: Hands-on Introduction[1]

Faculty Presenter — **Department**

Dr. Dave Schmalenberger — MUSC

ARCC Music faculty/World Drumming Ensemble director

Abstract

In this session, we will clap traditional West African rhythms, showing how the parts fit together and proving that you CAN do it!

74. Love is - a Collaborative Choral Production - 7 MN Community College Choirs[1]

Faculty Presenter — **Department**

Melissa Bergstrom — MUSC

Abstract

Love Is Love Is Love composed by Abbie Betinis. Combined choirs from Anoka-Ramsey, Minneapolis, Minnesota State - Fergus Falls, Normandale, North Hennepin and Riverland community colleges within the Minnesota State system.

75. Black/Folk Song Suite for Solo Cello by Coleridge-Taylor Perkinson[1]

Faculty Presenter — **Department**

Dr. Joel Salvo — MUSC

ARCC Music faculty/Cello instructor/Orchestra director

Abstract

Lamentations: A Performer's Look into Coleridge Taylor-Perkinson's Black/Folk Song Suite for Solo Cello including insights from personal interviews Dr. Salvo conducted with a cellist who knew the composer.

76. The Hidden Curriculum and Community College Students[2]

Faculty Presenter — **Department**

Katherine Skoretz — EDUC

Abstract

First generation students from low-income backgrounds have difficulty navigating the hidden social and economic curriculums of higher education. Community Colleges often struggle to retain and matriculate these students despite that being a major goal. This study explores how uncommunicated skills for navigating a Community College's hidden curriculum affected the experience of 3 first generation writing composition students who come from backgrounds of poverty. Students were asked about successful social skills inside and outside of higher education. Themes that emerged include: individual motivation and organization for collegiate success, asking questions and knowing people, and the importance of supportive figures.

77. Electric Vehicles (EVs) in Minnesota[2,3]

Presenter	Department
Sustainability Committee	GEOG, ENGR & AENG

Abstract

Electric Vehicles (EVs) provide a new opportunity for cleaner and more efficient transportation. This one-session course surveys the technology behind the shift to electric, the models available in Minnesota, and how EVs are charged. Jukka Kukkonen is Chief EV Educator and Strategist for Shift2Electric. An automotive engineer by training and a former Ford area manager, he has worked with the EV market for over 10 years. He also coordinates the MN EV Owners group and teaches EV Market and Technologies at the University of St Thomas.

78. Chasing Coral - Film Watch Party and Social Hour2[2,3,1]

Presenter	Department
Sustainability Committee	GEOG, BIOL ART

Abstract

Happy Earth Week! Thank you so much to everyone who has attended the Earth Month Events offered by ARCC Sustainability as well as to those of you who have encouraged students to attend. We have a few remaining events this month. All of these events are virtual, free, and open to all.

79. Wolves of the Northern St. Croix River[3]

Faculty Presenter	Department
Scott Danneman	BIOL

Abstract

This presentation is a summary of student and faculty research conducted on wolves that occur along the upper St. Croix river over the past three years. Wolves are an apex predator in Minnesota and have many effects on ecosystems. In this research students and faculty at ARCC have been studying wolves in St. Croix state park and surrounding areas since 2018. The main methods used are camera trapping and environmental DNA collection/analysis. The first year was not as successful as hoped but we did capture wolves in the park. The second and third year were highly successful with hundreds of photos of wolves captured each year. The park has a healthy population of wolves with a minimum estimated pack size of 8 or 9. Wolves and deer tend to overlap in location/time. Coyotes and wolves also tend to overlap. Environmental DNA from scat was successfully isolated and used to identify the scat. We look forward to continuing to collect data and expand our genetic techniques.

80. The CURE for Introductory, Large Enrollment and Online Courses[3]

Faculty Presenter	Department
Kristen Genet	BIOL

Abstract

Increasing undergraduate research opportunities for introductory and non-STEM students benefits large numbers of students from diverse backgrounds. This article assesses a course-based undergraduate research experience (CURE) in a large introductory course offered both online and in person at an open door community college. Seated students collaborated during class, and online students collaborated asynchronously at the same pace over eight weeks. Changes in scientific literacy and attitudes towards science varied; seated students showed greater gains and rated their abilities higher upon completion of the CURE. Although online students did show gains, additional interventions improved their experience. This study demonstrates how reflective and iterative

evaluation and improvement in CURE integration for introductory and non-STEM majors across delivery formats develops best practices for broadening participation in undergraduate research. This manuscript will be published in a forthcoming issue of SPUR (Scholarship and Practice in Undergraduate Research), a journal of the Council of Undergraduate Research (CUR). A PDF of the in-press manuscript is available from the author.

81. A CURE for Invasive Species – Undergraduate Research in Principles of Biology II[3]

Faculty Presenter	**Department**
Kristen Genet	BIOL

Abstract

In Fall 2020, my Principles of Biology II (BIOL 1107) students participated in a course undergraduate research experience (CURE) throughout the entire semester, where they worked through the scientific process to ask original questions about the establishment and rate of spread of locally problematic invasive species, their impact, and means of management and control. Students collected data from online digital natural history collections, used image analysis software, and data management and analysis techniques. As a final product, students prepared infographics to share with community partners (e.g., conservation and watershed districts, local governments, nature centers) to be used as web content, posting, or distribution as handouts. The work was done in collaboration with the BCEENET (Biological Collections in Ecology and Evolution Network) and a NSF funded rapid grant to establish undergraduate research opportunities for online students.

82. Butterfly Sexual Dimorphism and Sexual Selection CURE – Undergraduate Research in Principles of Biology II[3]

Faculty Presenter	**Department**
Kristen Genet	BIOL

Abstract

During Spring Semester 2021, students in my Principles of Biology II (BIOL 1107) course participated in a cross-institutional course undergraduate research experience (CURE) exploring variation in sexually dimorphic wing patterns of *Pieris* butterflies. They used digital images of Pieridae butterflies to investigate differences in the level of variation between sexually and non-sexually dimorphic melanized wing patterns. While sexual selection has been shown to play an important role in the evolution of wing patterns in butterflies, melanization is also used for thermoregulation, and can be seasonally plastic in *Pieridae* butterflies. Thus, patterns of variation in these two types of wing patterns will be correlated to changes in seasonality within a geographic location as well as changes in geographic distribution. CURE Research Goals:

1. Determine if traits that are sexually dimorphic in butterfly wing patterns vary more or less than traits that are not sexually dimorphic.
2. Determine if the variation in these two types of traits are correlated with latitude or seasonality.

Student Learning Objectives:

1. Accurately make and record measurements, including organizing and annotating datasets; identify methodological problems and how to troubleshoot them
2. Analyze data with appropriate quantitative methods, describing sources of error and uncertainty and bias in data
3. Communicate using evidence-based arguments and background research
4. Students work effectively as part of a collaborative group
5. Students recognize and evaluate increases in their ability to do scientific research
6. Students develop a sense of belonging in the scientific community

In summer 2020, an amazing team of undergraduate educators and natural history professionals supported by a RAPID grant from NSF collaborated to build CUREs that could be implemented entirely online for the upcoming academic year. The result is 4 highly adaptable CUREs that use freely available digitized natural history collections data, all summarized below. Each of the CUREs requires only internet access, computers, and make use of open source analysis tools and open

access educational materials, including hundreds of documents created by BCEENET members. All of the accompanying materials and publications will be made publicly available starting in June 2021.

83. **Practice sustainability research – A course-based research project**[3]

Faculty Presenter **Department**

Peggy (Margaret Guiney) BIOL

Abstract

In this presentation I describe the course-based research project that students complete in the Environmental Science courses I teach. Environmental Science (Biology 1103) is an introductory biology course that involves students from a variety of majors. The three research topics (food, waste, and recreation) all involve aspects where individual behavior change can contribute to a more sustainable world. Each topic involves tracking behavior during a baseline (normal) week (7-days) and a behavior change week where students purposely focus on changing a specific behavior. All three topics measure greenhouse gas emissions and compare emissions of the baseline and behavior change week. The goal of the food topic is to reduce environmental impacts by reducing consumption of protein from animal-based (meat and/or dairy) and increase consumption of plant-based foods. The goal of the waste project is to reduce waste overall, increase waste diversion (increase recycling and composting) thus decreasing waste that goes to the landfill or incinerator. The goal of the recreation topic is to increase nature-based recreation and decrease screen-based recreation (e.g. electronic device, phone, TV, computer). Each student chooses a topic and I arrange students into groups of three to six members. Students complete several group assignments designed to help them systematically complete the scientific method. Near the end of the semester each group presents their project in class. In the recording I describe additional details and share some student project examples.

84. **Prevalence and impressions of GMO food in Isanti County, MN, USA**[3]

Faculty Presenter **Department**

Melanie Melendrez-Vallard BIOL

Abstract

In recent years there has been a major push at the academic level to introduce research at the undergraduate level for both majors and non-majors. Studies have shown that the benefits of exposing students of all levels to relevant research; builds their independence, internal motivation, skills in experimental design and data analysis, and appreciation for the complex nature of real-world problems, especially those applicable to their field of interest. We designed an undergraduate research module investigating the prevalence of genetically modified foods (GMO) in our local food system as well as student attitudes surrounding GMOs. The module was implemented within a non-majors' course called Environmental Science at Anoka Ramsey Community College, Cambridge, MN USA in March 2020. The course design included several components to (i) address students misconceptions about GMOs (ii) increase understanding of how GMOs are created (iii) introduce evaluation of the primary literature surrounding GMO research (iv) expose students to molecular biology wet lab procedures which would normally not be introduced in a non-majors course (v) evaluate samples students acquired from the region and assess whether they are genetically modified or not. In general, students were very receptive to the research module introduction and wet lab process. Results indicated that the majority of samples were GMO negative from a variety of foods collected by the students. While average student perceptions regarding the 10 biggest misconceptions about GMOs did not change significantly from pre to post assessment; individual student perceptions from paired surveys did show shifts in student responses following the module. Most of these individual results indicated increased understanding from the module while others pointed out areas that could be clarified by the module designer to ensure student understanding is complete. This work has been redeveloped and expanded for implementation in a future course as a course based undergraduate research project.

85. Award Winning ASTRID & APOLLO Chapter Book Series[1]

Guest Presenter | **Department**

Vong Thao | ENGL

McKnight Artist Fellowship for Writers

Loft Award in Children's Literature/Middle Grade & Young Adult

Abstract

Recipient V.T. Bidania was born in Laos and grew up in Saint Paul, Minnesota, where her family resettled as refugees after the Vietnam War. She spent her childhood dreaming of the worlds she read about and imagining books that would include Hmong children like her. After college, she left Saint Paul for New York City and received an MFA in creative writing from the New School. She eventually returned to Minnesota and won a Mirrors and Windows Fellowship from the Loft. She is the author of Astrid and Apollo, a chapter book series starring second-generation Hmong American twins Astrid and Apollo Lee (Capstone, 2020), which is the first children's book series to feature Hmong characters. Astrid and Apollo is on the Chicago Public Library's List of Best Fiction for Younger Readers of 2020 and the 2020 Ultimate List of Diverse Children's Books by Here Wee Read. The Starry Campout, the first book in the series, was selected by the St. Paul Public Library as the chapter book for the 2021 Read Brave Program: Owning Our Stories and Rising Together for a Better Saint Paul. The Starry Campout is also an Amazon Editors' Pick for Best Books for Readers Ages 6-8. Bidania now lives outside of the Twin Cities with her family and is at work on the next four books in the series. Vong represents the Tutoring Services/Academic Support Center on the Coon Rapids Campus.

86. ARCC's Carbon Action Plan: Greenhouse Gas Analysis[3,2]

Guest Presenter | **Departments**

Brent Paulson | BIOL,

Minnesota GreenCorps | CHEM &

GEOG

Abstract

Happy Earth Month! Thank you so much to everyone who has attended the Earth Month Events offered by ARCC Sustainability as well as to those of you who have encouraged students to attend. We have a few remaining events this month. All of these events are virtual, free, and open to all.

GUEST PRESENTERS

87. 2021 ARCC OSCARS Keynote Address - The Community College Undergraduate Research Initiative[3]

Guest Presenter | **Department**

James A Hewlett | CCURI

Abstract

Hear Jim Hewlett tell the story of Undergraduate Research and Creative Activities at Community Colleges nationwide. The Community College Undergraduate Research Initiative (CCURI) uses an inquiry-based teaching model where students are exposed to real world science through a case study in an introductory course followed by a hands-on research experience resulting from questions about or related to the case. CCURI is providing resources for our 44 institutional partners including introductory workshops/conferences that are building regional and national collaborations, start-up supplies and a wide variety of faculty development opportunities. Professor Hewlett is a Pre-med graduate of Bucknell University (B.S. in Biology) and the University of Connecticut (M.S. in Physiology/Marine Science). After graduating from the University of Connecticut, he entered a doctoral training program within the Department of Pharmacology and Physiology at the University of Rochester, where he worked on adenoviral vectors for gene

therapy. Professor Hewlett currently serves as the Director of Biotechnology/ Biomanufacturing at FLCC. In addition to teaching, he serves as the New York Hub Director of the Northeast Biomanufacturing Center and Collaborative (NBC2). He also serves on the Editorial Board of the National Center for Case Study Teaching in Science and the Editorial Board of The American Society of Cell Biology's CBE Life Sciences Education journal. He serves on the Advisory Board for Rochester Institute of Technology's Center for Bioscience Education and Technology (CBET) and is a member of the Steering Committee for the University of Georgia's RCN-UBE Course-based Undergraduate Research Experiences Network (CUREnet). Professor Hewlett serves on the Editorial Board of the National Center for Case Study Teaching in Science at the University of Buffalo and is on the Editorial Board of The American Society of Cell Biology's CBE Life Sciences Education journal. He serves on the Advisory Board for Rochester Institute of Technology's Center for Bioscience Education and Technology (CBET) and is a member of the Steering Committee for the University of Georgia's RCN-UBE Course-based Undergraduate Research Experiences Network (CUREnet) and the Ecological Society of America's Next Generation Careers RCN-UBE. Professor Hewlett served as the Chair of the Advisory Board for "Taking Delaware's Biotechnology Education to the Next Level," a state-wide program designed to address the workforce demand in the region's growing biotechnology industry by expanding and enhancing educational capacity at Delaware Technical and Community College system. He is currently a member of the Committee on Strengthening Research Experiences for Undergraduate STEM Students at the National Academies of Sciences, Engineering, and Medicine in Washington, D.C.

88. Two Rivers Reading Series - A Reading and Interview with An Na[1]

Guest Presenter	**Department**
An Na	ENGL

Abstract

An Na is the author of four novels, including The Place Between Breaths, The Fold, Wait for Me, and A Step from Heaven, which was a National Book Award Finalist and won the ALA's Michael L. Printz Award. Her honors include the International Reading Association Award, Junior Library Guild Selection, Parents Choice Gold Award, ALA Best Books for Young Adults, and a New York Times Notable Book. She teaches at Vermont College of Fine Arts in the Writing for Children and Young Adults MFA. Each semester The Two Rivers Reading Series bring acclaimed and award-winning local, regional, and nationally known authors to campus. Students study these authors' stories, novels, essays, plays, or poetry in their English or Reading courses. Students then attend the readings in person to meet the author, ask questions, and have their books signed.

89. Two Rivers Reading Series - A Reading and Interview with Sheila O'Connor[1]

Guest Presenter	**Department**
Sheila O'Connor	ENGL

Abstract

Sheila O'Connor is the author of six novels including her most recent book, *Evidence of V: A Novel in Fragments, Facts, and Fictions,* winner for the Minnesota Book Award, Foreword Editor's Choice Award, and named one of the Best Criminal Justice Books of 2019 by the Marshall Project. Awards for her work include the Michigan Prize for Literary Fiction, International Reading Award, Barnes and Noble Discover Great New Writers, and Midwest Booksellers Award among others. She is a professor in the Creative Writing Program at Hamline University where she serves as fiction editor for *Water~Stone Review*, and she also teaches in the low-residency MFA program at Converse College. Each semester The Two Rivers Reading Series bring acclaimed and award-winning local, regional, and nationally known authors to campus. Students study these authors' stories, novels, essays, plays, or poetry in their English or Reading courses. Students then attend the readings in person to meet the author, ask questions, and have their books signed.

90. Minnesota Writers Series - Spring 2021[1]

Presenter	Department
Anika Fajardo	ENGL

Abstract

For thirty over years, the Minnesota Writers Series on the Cambridge Campus of Anoka-Ramsey Community College has featured some of the state's most exciting and accomplished writers. Our campus auditorium on the Rum River provides a beautiful, intimate setting for writers to read and discuss their work, take questions from the audience, and sign books following the program. We take great pride in offering these high-quality literary events for our college community and the East Central Minnesota region. All events are free and open to the public. Anika Fajardo was born in Columbia and raised in Minnesota. She is the author of *Magical Realism for Non-Believers: A Memoir of Finding Family*, a 2020 Minnesota Book Award finalist and winner of the *City Pages* Best of 2020. Her middle-grade novel, *What If a Fish*, was published in 2020 by Simon & Schuster. She makes her home in Minneapolis, where she works as a writer, editor, and teacher.

91. Careers in Writing Speaker Series[1]

Presenter	Department
Michael Kleber-Diggs	ENGL

Abstract

This was a career-focused conversation with award-winning poet, writer, reviewer, and social commentator Michael Kleber-Diggs.