Quest 2022: Poster Sessions

Posters, SUNY Oswego Syracuse Campus, April 5th, 5:30-7 PM

Poster Number	Department/ Program	Authors	Mentor	Title	Abstract
1	Biomedical and Health Informatics	Aufsesser, Kelley	Byeon, Boseon	Machine Learning for Cardiovascular Disease Prediction in Preventive Care and Treatment	Cardiovascular disease is a disease affecting the blood vessels and muscle of the heart. As the number one cause of death worldwide, it is important to identify the presence of cardiovascular disease early so that it can be treated before an event, such as heart attack or death, occur. Machine learning has been previously used to predict the presence of cardiovascular disease in datasets publicly available through the University of California, Irvine's (UCI) Machine Learning Repository. This project aims to determine how well machine learning can help identify the presence of and risk for cardiovascular disease in real people. The project first compares predictions among the 5 different datasets and a comprehensive version with various machine learning algorithms. Next, the same method is applied to select attributes of the comprehensive dataset, representing first patients receiving preventive care, and next representing symptomatic patients. Accuracy, recall, precision, and F1 scores were compared. Logistic regression also identifies significant features. Overall, it was found that using the comprehensive dataset machine learning can predict cardiovascular disease with approximately 85% accuracy, with up to 67% accuracy using only basic preventive care attributes and 87% for symptomatic patients. The results suggest that machine learning is helpful in identifying patients with heart disease. However, the moderate accuracy scores indicate that doctors should not solely rely on machine learning for identification of disease.
2	Biomedical and Health Informatics	Chandaluri, Pragathi; Latheef, Naazneen; Mistry, Manaliben	Bichindaritz, Isabelle	Survival Analysis Experiments in Multiple Cancer Types	Every tissue in the body comprises different types of cells organized in space. Even cells from the same lineage can develop unique and specific activities that are distinct from each other, allowing the tissue to carry out its biological functions. Taken together, the diversity and variability of cell types are defined as cellular heterogeneity, a biological phenomenon that is particularly important in the development of cancer. Adenocarcinoma development includes a number of processes, many of which are unknown but which point to epithelial-mesenchymal transition (EMT) as a crucial factor in disease progression to metastasis. ABI1, a WAVE complex member and actin cytoskeleton regulator and adapter protein, operates as a tumor suppressor in cancers, although its involvement in EMT is unknown. The overall goal of the experiment is to project the five-year survival ability of patients lacking the ABI1 gene. To investigate the molecular mechanism by which loss of ABI1 contributes to tumor progression, we compare different cancers and their association with the ABI1 gene. We considered two groups: Altered and Unaltered, to establish the relevancy between the ABI1 gene and cancer. A system is designed to analyze the data related to three different cancers: breast, ovary, and prostate cancers.

3	Biomedical and Health Informatics	Liu, Guanghui; Bichindaritz, Isabelle	Bichindaritz, Isabelle	Integrative Survival Analysis of Breast Cancer with Gene Expression and DNA Methylation Data	Integrative multi-feature fusion analysis on biomedical data has gained much attention recently. In breast cancer, existing studies have demonstrated that combining genomic mRNA data and DNA methylation data can better stratify cancer patients with distinct prognosis than using single signature. However, those existing methods are simply combining these gene features in series and have ignored the correlations between separate omics dimensions over time. In this study, we propose an adaptive multi-task learning method, which combines the Cox loss task with the ordinal loss task, for survival prediction of breast cancer patients using multi-modal learning instead of performing survival analysis on each feature data set. First, we use local maximum quasi-clique merging (lmQCM) algorithm to reduce the mRNA and methylation feature dimensions and extract cluster eigengenes respectively. Then, we add an auxiliary ordinal loss to the original Cox model to improve the ability to optimize the learning process in training and regularization. The auxiliary loss helps to reduce the vanishing gradient problem for earlier layers and helps to decrease the loss of the primary task. Meanwhile, we use an adaptive weights approach to multi-task learning which weighs multiple loss functions by considering the homoscedastic uncertain-ty of each task. Finally, we build an ordinal cox hazards model for survival analysis and use long short-term memory (LSTM) method to predict patients' survival risk. We use the concordance index (C-index) for assessing the prediction effect. Stringent cross-verification tests demonstrate that the developed approach is effective, achieving very competitive performance with existing approaches.
4	Biomedical and Health Informatics	Nguyen, Victoria	Bichindaritz, Isabelle	Predicting Mortality for MIMIC Patients with Tuberculosis in ICU using Machine Learning	Tuberculosis (TB) is a transmissible disease. Tuberculosis is the top ten cause of morbidity and mortality in the world. The need to strengthen the prediction of tuberculosis is very high in several countries. Predicting the risk of death correctly will alleviate situations when patients receive lackluster attention, and situations when patients who are at low risk receive too much attention, which keeps high-risk individuals waiting in long queues to be treated. In order to conduct a study of tuberculosis patients, this paper used the MIMIC database from Dr. Joseph Miles from SUNY Oswego. The dataset was drawn from the MIMIC database. With several machine learning methods, a study of tuberculosis prediction was conducted. The main aim of this study was to predict severity of tuberculosis in patients entering ICU using machine learning; the severities are included mortality and number of days in ICU. Machine learning models that will be used are Linear Regression, Logistic Regression, K-Nearest Neighbor (KNN), Random Forest, Artificial Neural Network (ANN), and deep learning (LSTM).
5	Biomedical and Health Informatics	Vangapalli, Varsha	Bichindaritz, Isabelle	Analytics Internship for Communications and Marketing	This poster depicts an internship project in Communication and Marketing from SUNY Oswego. The internship project at SUNY Oswego aims at enhancing student application intake for each semester effectively using tools such as Google Workspace to analyze data insights, track website traffic, and inform the design of marketing strategies. It involves data analysis and visualization, database management, website traffic, creating marketing campaigns and strategies. Big data is the key component and source of the analytical function. The analysis helps a marketing team in customizing and planning advertisements campaigns by noting down county viewership, application count origin corresponding to time(date, year, time), and others data. Connecting tools under one roof and utilizing machine learning help generate accurate results in scheduled time without manpower. More importantly, the reports help work effectively in loopholes and save some bucks in customizing business expansion strategies.

| 6 | Chemistry | Jandev, Vikrant | Bendinskas, Kestas | Improving SARS-CoV-2 Detection Methods | Reverse transcription-quantitative polymerase chain reaction (RT-qPCR) is a standard test used in COVID-19 detection. This project was designed to look for weaknesses in the current detection methods. We studied the forward and reverse primers and probes recommended by CDC to determine if mutations compromise the primers. We ordered primers and probes containing impactful mutations, as determined by a non-commercial the calculator we created. Synthetic SARS-CoV-2 RNA was used as a target. We determined that multiple mutations can cause a positive change in the ΔG value for primer binding. Triple mutations affected the binding to the extent that RT-qPCR worked 100,000 times worse than expected. We also developed procedures to provide biochemistry students with an engaging educational experiment on checking mutations and designing, using, and improving primers and probes for SARS-CoV-2 detection. Students of Biochemistry I and II tried this laboratory in the Spring and Fall of 2021; we documented a significant positive impact on learning; students recommended continuing this laboratory experiment in future years. This work will be submitted for publication in JChemEd. |
| 7 | Chemistry | Cheng, Hana | Bendinskas, Kestas; Tenbergen, Gilian | Male and Female Testosterone Levels in Blood, Saliva, Hair, and Nails | The overarching goal of this experiment is to determine the relationship between sexual behavior and testosterone levels. Samples of blood, hair, nails, and saliva were donated by 40 males and 20 females. Participants were asked to fill out a SIS/SES survey to measured sexual behaviors, and a hand scan was taken to measure 2D:4D ratios. Testosterone from blood was extracted using diethyl ether, and testosterone from hair and nails were extracted using a series of methanol and acetone extractions. Saliva samples were centrifuged then measured directly. Testosterone levels were measured using ELISAs. Testosterone levels in males and females were measured to ensure that our measurements were consistent with literature. Comparisons between testosterone levels measured in blood, saliva, hair, and nail samples were also made. Additionally, a set of validation questions were answered to determine the validity of our procedures. |

Art and Design Display, Oswego Campus, Tyler Hall Lobby, April 6th, 2:00-5:00 PM

Poster Number	Department/ Program	Mentor	Artists	Title
8 through 11	Art and Design	Clabough, Cynthia	McDorman, Peter; Warwick, Nick; Cuevas, Crisalis; Gray, Peter	Explorations in Art and Design

Posters, Oswego Campus, Swetman Gym, April 6th, 2:00-3:00 PM

Poster Number	Department/ Program	Authors	Mentor	Title	Abstract
12	Atmospheric and Geological Sciences	Davis, Austin	Agle, Paul	Rice Creek Sedimentation: Response to Weather Events and Beaver Activity	The sedimentation at Rice Creek is subject to the usual rise and fall of water levels and creek discharge which affect the sedimentation occurring on the river bed. However, in recent times, Rice Creek has seen more drastic change than would normally be expected, including a large rain storm in June of 2019 with rainfall totals of 3 inches in only 5 hours, which caused devastating flooding not only in Rice Creek but in the entire surrounding Oswego area. Rice Creek discharge is also impacted by the ongoing hard work of beavers that have decided to take residence along the creek. Water Levels are also artificially regulated at the spillway of the earthen dam downstream. As the water level, discharge and velocity rises and falls due to these flow conditions, the sediment size that Rice Creek can carry changes as well. This fluctuation in sedimentation can be observed in the variation of sediment deposits of the river bed. To analyze this variation, I obtained 7 core samples in a transect across the creek. Through a sediment grain-size analysis of these core samples, I have constructed a cross section across a meander in Rice Creek. I intend to use this cross section along with local stream gauge data to correlate the sediment deposited with variations in the water flow due to the events discussed above. These discoveries can be used to further understand and predict how the Rice Creek nature area is affected by future precipitation events.
13	Atmospheric and Geological Sciences	Skinner, Michael	Agle, Paul	The Effects of Sediment Load on Fluvial Morphology using the EMRiver Physical Model	The EMRiver fluvial modeling system is an effective tool for studying the impact of multiple variables on the development of fluvial landforms. The EMRiver EM3 stream table is 3 meters long, and 1 meter wide, utilizing 108 kilograms of melamine plastic sediment with variable grain size, coded by color. This low density modeling media allows for fluvial modeling on a smaller scale. Our EM3 stream table is equipped with longitudinal slope tilt, a water pump with adjustable flow rate (ml/s), and an automatic sediment hopper with adjustable sediment loads (g/s). Sinuosity can be defined in this context as the degree in which the fluvial system meanders, in comparison to the straight-line distance, resulting in a ratio. Sinuosity and channel width are affected by a multitude of variables including water flow rate, channel slope, and sediment load. I ran the physical model, while recording timelapse video, over a range of different flow rates and channel slopes. For each set of start conditions, I ran the model with zero sediment load, as well as low sediment load (1.0 g/s) and high sediment load (2.0 g/s). I measured the valley length (distance from water inflow to outflow) and total observed stream channel length to formulate the sinuosity. This research can help us better understand factors that contribute to riverbank erosion, and possibly assist with remediation efforts in high-erosion fluvial environments. From an educational perspective, the EMRiver stream table can help students understand variables that contribute to sinuosity and bank erosion.

14	Atmospheric and Geological Sciences	Negila, Allegra	DiFrancesco, Nick	Properties and Source Region of Igneous and Metamorphic Glacial Sediment Deposition in Central NYProperties and Source Region of Igneous and Metamorphic Glacial Sediment Deposition in Central NY	Much of the surface geology of Oswego County, NY consists of glacial till or lacustrine sands and gravel deposited by the recent glaciations. Based on previous work, this till was determined to consist largely of gravel to cobble-sized sediment eroded from local clastic sedimentary rock formations. However, approximately 20% of this surface sediment is not sedimentary, but rather felsic igneous and medium to high grade metamorphic rock. It is probable that this sediment was transported from points north, in the Adirondacks and Thousand Island regions or Southeastern Ontario, Canada, north of Lake Ontario. Determining the origin of these sediments could help to understand ice flow direction as well as patterns of weathering and erosion. Hand-sized samples of igneous and metamorphic rocks were collected along two drumlins at Rice Creek Field Station (RCFS) and Oswego Middle School (OMS), both located in Oswego, NY. Igneous and metamorphic bedrock, with similar mineralogy and texture to crystalline sediment at RCFS, was collected from possible source regions of this sediment in NYS, for comparison to the glacial sediment from OMS and RCFS. All rock samples were categorized based on the abundance of major minerals visible in hand samples and cut clasts. Thin sections were analyzed via optical and electron microscopy, with SEM/EDS and XRD being used to further constrain mineralogy and determine bulk geochemistry. XRF analyses were conducted determining trace element concentrations in efforts to better correlate samples to possible source regions. Analyses show that glacial deposits in Oswego appear to contain sediment derived from sedimentary and metasedimentary bedrock in northern NY.
15	Atmospheric and Geological Sciences	Davis, Austin	Stroup, Justin	Electrical Resistivity Tomography (ERT) Mapping of Water Table Elevations at Junius Ponds, NY	The Junius Ponds are a series of four connected lakes surrounded by rare groundwater fed wetlands. The site is nested in glacial sediments and groundwater flow is crucial for sustaining the wetlands which contain an abundance of rare plant and animal species. Over the years, much work has been focused on the ecosystem but there has been relatively little investigation of the groundwater which supports this system. Here, we use electrical resistivity tomography (ERT), up hydrological gradient of the wetlands, to map the water table at key locations. The ERT profiles are well suited for this work because they are a noninvasive and accurate way to determine the depth of the saturated zone. The data lends itself to establishing the hydraulic gradient and determining the direction of groundwater flow to discharge areas. Our data contributes to ongoing conservation efforts of this unique ecosystem.

| 16 | Atmospheric and Geological Sciences | Krohl, Sara L.; Stroup, Justin S.; Mosher, Hayley M.; Frieman, Richard A. | Stroup, Justin | An Analysis of Grain Size Changes in The Upper Five Units of The Searles Lake, CA Stratigraphy | The Southwestern United States is presently known for its arid climate. However, numerous paleoclimate records reveal wet and dry fluctuations occurred on centennial to millennial time scales. The sediments preserved in the Searles Lake basin, CA consist of alternating mud and evaporite layers which have been interpreted broadly to indicate wetter and drier conditions, respectively. In 2017, the SLAPP core (76 m-long, >200 ka) was collected with the goal of constructing a detailed multi-proxy climate record that builds on a significant body of prior work. Five units were recovered: the Mixed Layer, Bottom Mud, Lower Salt, Parting Mud, and Upper Salt (from bottom to top). Here, we analyzed the grain sizes of these five units to understand basin sediment transport and interpret these changes within a paleoclimate framework. We removed evaporite minerals and organic materials from ~700 samples to isolate the clastic fraction. Grain size distributions were measured with a Coulter LS 13 320. We examined unit to unit and within unit changes in grain size distributions. Identified characteristic grain size patterns can be used to compare units. The Mixed Layer and Bottom Mud were enhanced in clay to fine silt relative to the core mean. Within the Bottom Mud, a 3.8 m interval has a distinct bimodal grain size distribution with a coarser fraction not observed in the rest of the unit. The Lower Salt coarsens upward, and the Parting Mud is nearly identical to the core's mean grainsize distribution. Lastly, the Upper Salt contains a finer sediment fraction compared to the core mean. We also observed that units and subunits have distinct grain size distributions that can be tracked by comparing changes in grain size peak frequencies. This may be helpful in identifying short-term changes in sedimentation. The current analysis suggests finer grain sizes occur during wetter conditions and coarser grain sizes occur during drier conditions. Our investigation of grain size distributions is working toward a more unified set of proxy records that link evaporite mineralogy, shoreline data and other proxies, which together will provide a detailed history of the past climate conditions in the region. | . |
| 17 | Atmospheric and Geological Sciences | Pagnanelli, Michael | Wang, Yonggang | A Climatology of Marine Cold-Air Outbreaks in Northern Norway | Climatology of Marine Cold-Air Outbreaks in Northern Norway A cold-air outbreak (CAO) is one of the most intense air mass transformations on Earth that occurs when a cold air mass over the Arctic ice flows southward over North Atlantic open water. This meteorological phenomenon is important to understand as it affects the Earth's climate. The motivation behind this study stems from the absence of previous research on CAOs at a fine resolution and the importance that these events have on earth's climate. Despite the large impact that CAOs have on global atmospheric and ocean circulations, our understanding of CAO clouds and their effects in weather and climate models are limited. A better understanding of CAOs will lead to the development of more accurate climate models which can improve prediction in the direction that the Earth's climate is heading. This study presents a climatology of the arctic CAOs using the observational datasets collected from the Cold-air Outbreaks in the Marine Boundary Layer Experiment (COMBLE) funded by the Department of Energy. COMBLE collected data at two sites from December 2019 to May 2020: Andenes on the northern Norwegian coast and Bear Island. This study used the data collected through COMBLE including KAZR radar data, SONDE data, a value added product MERGESONDE, and measurements from a meteorological surface station. The climatology of CAO events was produced using this data and the ERA5 (ECMWF Reanalysis v5) data. | . |

| 18 | Biological Sciences | Bablin, Katherine | Sard, Nicholas | Environmental DNA | As organisms interact with their environment they leave DNA behind, hereafter referred to as environmental DNA (eDNA). eDNA can be collected from soil, water, and even the air; although historically most eDNA studies have focused on water sampling. eDNA sampling is a growing tool for conservation and management, as it provides a more efficient and less invasive way to estimating biomass and species composition, and allows for the detection of both rare and invasive species. Over 200 vertebrate species have been observed at Rice Creek Field Station (RCFS) over the past 50 years. In addition, the field station contains several primary tributaries that flow into Rice Creek itself, a man-made pond, as well as at least 10 vernal pools. Accordingly, the system is an ideal location to study eDNA composition over time. Since 2019, ten locations from the mouth to the headwaters (near Fulton, NY) have been sampled from the spring to the fall. In addition, the 10 vernal pools have been sampled during the same time period. Following filtration on 1.5 Î¼m glass-fiber filters, eDNAs were extracted using a CTAB protocol. Thus far, there have been 93 successful eDNA extractions from water samples. Collectively these samples represent a repository of all species diversity within the watershed through space and time. To date, the repository has been used to study fish, mammals, reptiles, and birds. However, any species that resides or has resided in the watershed during the sampling time period can be queried for using the polymerase chain reaction and gel electrophoresis. | . |
| 19 | Biological Sciences | Buckler, Sarah | Artemenko, Yulia | Role of the Dimerization Domain of Filamin in Dictyostelium discoideum Response to Shear Flow | Molecular mechanisms by which cells sense and directionally migrate in response to mechanical perturbation are not well understood. Dictyostelium discoideum cells exposed to a brief burst of shear flow show rapid activation of multiple components of the signal transduction network that participates in directed migration of these cells. Previous data from our laboratory demonstrated that actin crosslinking protein filamin is involved in the ability of cells to respond to shear flow. We also found that the actin-binding domain is required for filaminâ€™s function in this context. To determine if the dimerization domain (DD) is also required for filaminâ€™s role in sensing/transmitting mechanical stimuli we generated a truncation construct of filamin lacking DD (FLNÎ”DD) and expressed it in wild-type or filamin-null cells. FLNÎ”DD relocalized to the cortex of both wild-type and filamin-null cells following 2-sec stimulation with shear flow, suggesting that dimerization between filamin molecules is not required for their recruitment to the cortex. To detect activation of the signal transduction network in the presence or absence of FLNÎ”DD, we used fluorescently-tagged Ras binding domain biosensor that detects active Ras and was previously shown to relocalize to the cortex following mechanical stimulation. Surprisingly, FLNÎ”DD was able to rescue the reduced response of filamin-null cells to shear flow stimulation, suggesting that dimerization of filamin may not be needed for the cellâ€™s ability to sense or transmit mechanical cues. However, the presence of FLNÎ”DD may also alter the overall organization of the cytoskeletal network, which is currently being investigated. | . |

20	Biological Sciences	Dodangoda, Hiruni, Moore, Saleema	Geetha-Loganathan, Poon	Effects of Perfluoroalkyl Substances (PFAS) on Behavioral Activity in Dugesia dorotocephala	Perfluoroalkyl substances (PFAS) are persistent organic contaminants, widely used in surfactants for commercial and industrial applications. A member of PFAs, perfluorooctanoic acid (PFOA) is resistant to environmental degradation hence can be bioaccumulated through the food chain. The PFOA is shown to cause developmental toxicity, induced apoptosis, neurotoxicity, mitochondrial damage, liver malfunction, reproduction toxicity, endocrine damage, and immunotoxicity in vertebrates. While most of the studies to investigate the toxicology of PFOA were done in mammals, very little is known about the teratogenic effects of PFOA on freshwater invertebrates. In this study, the brown planarian Dugesia dorotocephala was used as a model to investigate the effect of PFOA (0.5 mg/L to 5 mg/L) on behavioral activity.	.
21	Biological Sciences	Ellis-Cox, Noble	Hellquist, Eric	Patterns of salinity associated with snow & ice on the SUNY Oswego campus		.
22	Biological Sciences	Hernandez, Sonia, Caruana, Tristin, Manning, Stephen	Olori, Jennifer; Sard, Nicholas; Hammerly, Susan	Amphibian Disease	Global amphibian decline has been significantly impacted by the infectious diseases chytridiomycosis and ranavirosis. Batrachochytrium dendrobatidis (Bd) is a zoospore producing fungus that causes chytridiomycosis, which infects the skin and interferes with amphibians' ability to breath or take up water. Similarly, ranavirus (Rv) can cause skin ulcers or internal bleeding in amphibians, also contributing to declines. For a decade, a long-term assessment of Bd and Rv at Rice Creek Field Station has been ongoing to learn more about the interactions between these diseases and their effects on local amphibian populations. Since initial sampling, amphibians have been swabbed for Bd on their hands, thighs, feet, and abdomen; whereas, tissue was collected for Rv by clipping a toe. Since 2018, 453 samples have been collected, and DNA currently is being extracted so that the presence of each disease can be tested for using the polymerase chain reaction. To date, DNA has been extracted from 206 tissue samples (35.3 mean +/- 126.4, 1 SD) ng/ul. Samples previously tested as positive for Rv are now being amplified and run through gel electrophoresis to obtain a positive control for future assays. In future work, we expect to extract remaining unprocessed samples up to 2022 and test for both Bd and Rv using the obtained positive controls to determine its prevalence in Rice Creek Field Station.	.

23	Biological Sciences	Holding, Charlotte	Hammerly, Susan, Matteson, Donna	Redesigning Nature - The Process of Designing a North American River Otter (Lontra canadensis) Enclosure Using Observational Data	North American River Otters (Lontra canadensis) are a highly adaptive and social species that can be found throughout most parts of North America. Due to their social and playful nature, they have become fixtures at zoos and aquariums all over the world. The goal of this project was to understand how river otters in captivity use their environment and then design an enclosure which could be implemented in zoos and aquariums that accentuates their natural behavior, while optimizing animal welfare and patron education. During the summer of 2021 observations on how captive individuals used their environment, including substrate preference for different behaviors in varying locations, were conducted using web cameras at 5 different institutions. Captive individuals spent approximately 60% of their time on land and 33% of their time in the water. The majority of their time on land was spent being inactive/resting (50%) or active/exploring (24%). River otters housed in an indoor enclosure with artificial substrates spent more time in the water, while those housed outdoors with natural substrates spent more time on land. Analysis on substrate and land use preferences are being used as the foundation of my exhibit design, which features large spaces of natural substrates such as soils and foliage as well as multiple places for dens to meet the needs of individuals and the captive population as a whole.	.
24	Biological Sciences	Makutonin, Miryam	Geetha-Loganathan, Poon	Bioacumulation of Atrazine in Elliptio complanata	Atrazine (ATR) is a commonly found herbicide contaminant in water bodies across the United States. Freshwater mussels are used as a common biomarker for testing the effects of toxins as they are filter feeders and toxins will be directly incorporated into their cells by diffusion. Previous studies in the lab showed the effects of ATR bioaccumulation at a concentration of 150 μg/L in native freshwater mussels (Elliptio complanata). Phenotypes induced by ATR include reduced or no ciliary epithelium causing malformed gill filaments; inhibition of condensation of spermatogenic cells and induced necrosis in spermatocytes in the testis; and disintegration of acini, oocytes, follicles, and epithelium of the duct in ovaries. Here, the liquid chromatograph-mass spectrometer (LCMS) is used to quantify the levels of bioaccumulation of ATR in the tissue where the teratogenic effects are observed from the previous histological analysis. Studying the teratogenicity of atrazine will be helpful in preventing the herbicide from contaminating the water bodies and subsequently the animals.	.
25	Biological Sciences	Manning, Stephen, Nohomovich, Mark	Olori, Jennifer	Measuring Salamander Skull Roof Compactness and Thickness to Investigate Relationships With Ecology	Vertebrates with a fossorial lifestyle are hypothesized to have a more robust skull to endure the pressures of digging. To investigate this, 18 different species of salamanders from different ecologies were CT scanned in order to compare skull roof compactness and thickness across different lifestyles. Four bones in the skull were of particular interest, including the premaxilla, nasal, frontal and parietal. Those bones compose the skull roof, which aligns with the main axis of force during burrowing and partially protects the brain. The bones of interest were then virtually segmented in the software 3D Slicer and extracted from the rest of the skull. The skull roof volumes were added to the FIJI image processing software, where thickness and compactness are measured and a graph is produced showing trends from anterior to posterior across the skull. Trends across species can then be compared in order to test associations between bone robustness and ecology. Preliminary observations from CT data suggest that higher compactness may be associated with small size more than lifestyle in salamanders. That association differs from trends reported in lizards and snakes, and we suggest that thickness, rather than compactness, may be a more important structural component for burrowing salamanders.	.

26	Biological Sciences	Pacheco, Sayuri, Peay, Skylar	Sard, Nicholas	Redesigning species-specific environmental DNA assays to detect River Otter presence in Rice Creek Field Station	Environmental DNA (eDNA) is a non-invasive tool used to survey the distribution and abundance of species, obtained indirectly from a species via bodies of water, land, or air We studied the North American River Otter (Lontra Canadensis) because they are keystone indicators of the quality of aquatic habitats and are an important predator of fish and aquatic invertebrates. In addition, studying the ecology of River Otter DNA informs future semi-aquatic mammal studies that opt to use eDNA sampling techniques. The most recent published assay for River Otters was created based on sequence information among Rocky Mountain species, therefore an in-silico redesign of the assay was conducted focusing on the genes Cytochrome c oxidase I (COI) and Cytochrome b (CYTB) to enable species-specific inferences in the Great Lakes region. Primers were redesigned on MEGA-X to maximize mismatches against non-target species at the 3â€™ ends of primers. COI and CYTB forward and reverse primer mismatches ranged 3-7 and 4-12, respectively, among non-target species. In vitro tests are currently being conducted to determine if each assay is species-specific. Using these assays allows for better monitoring of River Otters in the Great Lakes region, and can help develop practical approaches to protect and manage biodiversity.	.
27	Biological Sciences	Ross, Danielle	Newell, Peter	Creating Recombinant Strains of Acetobacter Bacteria using the Tn7 Transposon	Acetobacter bacteria are found among the gut microbes in Drosophila melanogaster, the common fruit fly. These bacteria utilize different intermediates in the purine salvage pathway to obtain nitrogen under low nutrient conditions. Some Acetobacter species can use multiple Drosophila waste products, such as uric acid and allantoin, while others can only use uric acid. Our research used a Tn7 transposon to genetically modify bacteria in order to create recombinant strains with new nitrogen utilization capabilities. This work will enable future research that investigates how bacteria adapt to life in the gut microbiota.	.
28	Biological Sciences	Salinas, Mariabelen	Chandler, Christopher	Sex Biased Genes in Three Terrestrial Isopod Species	Sex chromosomes are the primary agent determining sexual differences between males and females in many animal species. Alternatively, sex-specific regulation of autosomal genes can also influence sexual development. However, the molecular genetic basis of sex determination and sex differentiation is still poorly studied outside of common genetic model organisms. One group of organisms that is especially interesting is the terrestrial isopods, because frequent sex chromosome turnovers have been observed in several isopod species. The occurrence of reproductive manipulators, such as Wolbachia, in isopods is one plausible explanation for the high incidence of turnovers. Terrestrial isopods have the potential to serve as model organisms to address the observed rapid sex chromosome turnover observed in several arthropod groups. Porcellio scaber, P. laevis, and Trachelipus rathkei are three terrestrial isopod species present in Upstate New York. To identify candidate genes of sex development in these species, we analyzed gene expression patterns with RNA-Seq from whole body and tissue specific samples of each species. In insects, it has been frequently reported that male biased genes undergo rapid evolution due to sexual selection. Thus, we expect male-biased genes to display high nonsynonymous to synonymous substitution rates (dN/dS) in our three focal species. We report a comparative analysis of sex-biased genes in P. scaber, P. laevis, and T. rathkei.	.

| 29 | Biological Sciences | Saljanin, Palina | Artemenko, Yulia | Investigation of the Adhesion-Modulating Properties of Bovine Serum Albumin (BSA) in Dictyostelium discoideum | Dictyostelium discoideum is a social amoeba commonly used as a model organism in cellular migration studies. Dictyostelium adhesion is mediated by nonspecific interactions, such as Van der Waals forces, as well as specific protein-mediated interactions between the cell and the substrate. Since adhesive properties of this organism affect its motility, finding ways to manipulate its nonspecific or specific interactions can be useful for future migration experiments. We tested the effects of bovine serum albumin (BSA), which is known to affect nonspecific binding via its interference with electrostatic interactions, on Dictyostelium adhesion. Bacterially-grown wild-type cells had increased adhesion when plated on 3% BSA, while axenically-grown cells exhibited a decrease in adhesion on BSA. To explore why BSA has differential effects on adhesion of Dictyostelium grown under different conditions we tested adhesion of cells lacking one of the specific mediators of attachment, Talin A (TalA). Unlike wild-type cells, both axenically and bacterially-grown TalA-null cells had decreased adhesion on BSA. These data suggest that BSA effects on adhesion may be dependent on TalA in bacterially-grown cells. Alternatively, since TalA-null cells have an impaired ability to phagocytose, they may behave more like axenically-grown cells even when grown on bacteria. In this case, differential effects of BSA may be due to the inherent differences in the adhesion mechanism of cells grown under axenic vs. bacterially-fed conditions. We are currently examining these possibilities. | . |
| 30 | Biological Sciences | Saltzer, Regan | Olori, Jennifer | Skull Morphology of the burrowing asps Homoroselaps lacteus and Atractaspis aterrima | Within snakes, the extant group Atractaspididae has many unique traits, such as possessing an envenomation system despite being fossorial and living in narrow tunnels. Due to this elusive lifestyle, they are harder to observe in nature. To better understand the relationship between the morphology of the skull, envenomation, and the burrowing behavior of Homoroselaps lacteus and Atractaspis aterrima, I used digital models of the skull made from CT scans. Scans were obtained for one member of each species, and these were then segmented in Avizo software in order to isolate each bone and view it 3-dimensionally. This allowed me to do a morphological analysis and compare the skull of each species to the other, as well as to other species described in literature. Upon analysis of these scans, it can be noted that the lower jaw of Homoroselaps has bones that are more robust than those of Atractaspis, which may indicate differences in diet. The teeth in the lower jaw of Atractaspis are reduced compared to Homoroselaps. Atractaspis also has the unique ability to perform a â€œside-strikeâ€ in which it can strike its prey without having to open its mouth. Together, these features may indicate that Atractaspis relies more heavily on the envenomation system to subdue its prey, while Homoroselaps may rely on crushing force. | . |

| 31 | Biological Sciences | Tarallo, Valeriia | Artemenko, Yulia | Investigation of the Effects of alpha-Mannosidase on Cell Adhesion and Movement in Dictyostelium discoideum | Cell migration guided by mechanical cues such as shear flow has not been thoroughly studied, even though various cells in the human body are influenced by shear forces, including cells of the immune system and cancer cells that escape the primary tumor. Dictyostelium discoideum is a social soil-dwelling amoeba that has been used extensively as a model organism for studying cell movement, including directed migration in response to shear flow. Although shear forces activate the same molecular pathways as those activated after exposure to chemical stimuli, it is unclear how a cell initially senses mechanical stimuli. We hypothesize that the carbohydrate coating on the cells, or the glycocalyx, is involved in the cell's ability to respond to mechanical cues. To test this hypothesis, we will examine responses to shear flow in cells that are treated with an enzyme that removes mannose sugars, the main component of D. discoideum's glycocalyx, and has been previously shown to reduce adhesion of the cells. We are currently generating cells with a fluorescently-labeled biosensor for detecting responses to stimulation, which is done by electroporation of cells with a plasmid. The success of the transformation will be confirmed by epifluorescence microscopy. In addition, we are establishing the optimum dimensions of the microfluidic slides used for mechanical stimulation assays to obtain maximal response to stimulation in untreated cells. Once conditions are established, we will begin comparing responses of cells treated with the alpha-mannosidase enzyme to control cells treated with a vehicle. |
| 32 | Biological Sciences | Waters, Gabrielle, Deland, Luke | Sime, Karen | Rates of infection of Ophryocystis elektroscirrha upon monarch butterflies (Danaus plexippus) in Oswego County and the western Adirondack Park | The orange and black wings of the eastern monarch butterfly (Danaus plexippus) are a known and welcome sight to all who witness their long migration from central Mexico to southern Canada. These charismatic insects play an important role in the pollination of a variety of plants across North America. Unfortunately, their vast numbers have been greatly reduced over recent years, so much so that they have been under continued consideration by the United States Fish and Wildlife Service for listing as an endangered species under the Endangered Species Act. While their decline in population may be attributed to multiple causes, work is being done to determine how much of an impact the protozoan parasite (Ophyrocystis elektroscirrha) is having on D. plexippus. However, in New York populations, the overall effects of O. elektroscirrha are largely unknown as there is a lack of data for the state. This continued study has built data across six years for the local monarch populations of Oswego County, New York. While most samples taken have been from migratory adults, the addition of rearing local larvae was added in 2020. In 2021, an additional location in the western Adirondacks was sampled to expand the data set. For the 2021 season, a 16.3% infection rate of O. elektroscirrha was found in Oswego County. In comparison, Adirondack sampling showed an 8.7% infection rate. Further analyses are underway to determine any differences in infection and sexes, and any differences in the body size of non-infected and infected individuals. |

33	Chemistry	Ashlaw, Emily	Baker, Matthew	Development of a Detection System via a Degradable Coumarin-based Polymer	Detection systems, also known as diagnostic systems, have a variety of uses in society. The ability to identify toxins, pollutants, and contaminants in publicly distributed goods (foods, pharmaceuticals, drinking water, etc.) provides the potential to improve public health by identifying and eliminating dangerous products. Though these detection systems would be beneficial for people everywhere, unfortunately, they are typically seen only in an advanced industrial capacity. This is due, in part, to the fact that most diagnostic systems require the ability to detect a desired molecule and amplify a readout that the user can observe. More specifically, current systems are limited by the stability of their amplification reagents. These systems often fail to produce a reliable signal after being exposed to varying environmental conditions. In an attempt to alleviate these shortcomings, a detection system developed from a polymeric system with inherent environmental stability is explored. Furthermore, a polymer of customizable size could be used to provide amplification of 100 times, 1,000 times, or even more, increasing the utility of such a system. Herein we are developing a coumarin-based polymer in conjunction with a "detection unit" that will react with molecules of interest to produce a fluorescent signal that can be easily observed. With this system, ultimately, a variety of important molecules could be detected at low concentrations.	.
34	Chemistry	Dwomoh Osei, Nana	Baker, Matthew	Development of an Environmentally Friendly Material from Lipoic Acid	Plastics have become a critical component of society due to their wide range of applications. However, with their increasing production, it is important to understand their impacts on the environment. Plastics come from two main sources: fossil fuel sources and biological sources. Although most plastics come from fossil fuels, evidence has shown that this source is harmful to the environment due to the detrimental methods used to obtain the raw materials and due to the pervasive nature of these plastics in the environment. However, degradable plastics that come from bio-sources serve as a potential solution to these problems because the raw materials are sustainable, and the used plastic products will not last in the environment for an extended period. As a result, the goal of our research was to use biomass to synthesize stimuli-responsive polymers that can undergo degradation in response to an external stimulus. More specifically, this project focuses on the use of lipoic acid (a small molecule found in nature) because it can be modified and converted to plastic using visible light. However, we have found experimental evidence showing that this material can subsequently be degraded using UV light. This poster will focus on the photo-responsive nature of lipoic acid methyl ester and the impacts different wavelengths of light have on that structure.	.
35	Chemistry	Gervasi, Morgan	Brown, Thomas	Introduction to Crystallography for Undergraduates	Molecular structure, including bond lengths and angles, play a large role in determining the properties of a given compound. Of particular importance for determining molecular structure is X-ray Crystallography. Crystallography is the study of structures and properties of crystals. Structures are determined using single crystal x-ray diffraction (SCXRD) within the field of crystallography. In order to strengthen the crystallography practices at SUNY Oswego, teaching materials have been developed over the past few months. The developed materials consist of activities based on theory and hands on technical practice, which include exercises from growing crystals to structure refinement using the crystallography software package SHELX. A major focus of this project is working on developing a method for processing ideal data sets to solve and refine structures for possible use in the inorganic teaching laboratory for Fall 2022.	.

| 36 | Chemistry | Jandev, Vikrant | Bendinskas, Kestas | Improving SARS-CoV-2 Detection Methods | Reverse transcription-quantitative polymerase chain reaction (RT-qPCR) is a standard test used in COVID-19 detection. This project was designed to look for weaknesses in the current detection methods. We studied the forward and reverse primers and probes recommended by CDC to determine if mutations compromise the primers. We ordered primers and probes containing impactful mutations, as determined by a non-commercial the calculator we created. Synthetic SARS-CoV-2 RNA was used as a target. We determined that multiple mutations can cause a positive change in the ΔG value for primer binding. Triple mutations affected the binding to the extent that RT-qPCR worked 100,000 times worse than expected. We also developed procedures to provide biochemistry students with an engaging educational experiment on checking mutations and designing, using, and improving primers and probes for SARS-CoV-2 detection. Students of Biochemistry I and II tried this laboratory in the Spring and Fall of 2021; we documented a significant positive impact on learning; students recommended continuing this laboratory experiment in future years. This work will be submitted for publication in JChemEd. | . |
| 37 | Chemistry | Cheng, Hana | Bendinskas, Kestas; Tenbergen, Gilian | Male and Female Testosterone Levels in Blood, Saliva, Hair, and Nails | The overarching goal of this experiment is to determine the relationship between sexual behavior and testosterone levels. Samples of blood, hair, nails, and saliva were donated by 40 males and 20 females. Participants were asked to fill out a SIS/SES survey to measured sexual behaviors, and a hand scan was taken to measure 2D:4D ratios. Testosterone from blood was extracted using diethyl ether, and testosterone from hair and nails were extracted using a series of methanol and acetone extractions. Saliva samples were centrifuged then measured directly. Testosterone levels were measured using ELISAs. Testosterone levels in males and females were measured to ensure that our measurements were consistent with literature. Comparisons between testosterone levels measured in blood, saliva, hair, and nail samples were also made. Additionally, a set of validation questions were answered to determine the validity of our procedures. | . |

| 38 | Health Promotion and Wellness | Glebocki, Isabella; Muniz, Khassandra | Keida, Elizabeth Dr; Harris, Jessica Dr; Friedman, Barry Dr | Discover Wellness: A Worksite Wellness Program |

Background & Purpose: In the United States, chronic diseases, such as obesity, Type II diabetes and cardiovascular disease are at an all-time high, with high associated healthcare costs. The stressors of the COVID-19 pandemic have introduced new stressors, disrupting support networks and self-care routines for millions of Americans, and COVID-19 infection is associated with persistent increases in cardiovascular disease risk. In this context, we have executed Discover Wellness, a virtual worksite wellness program that aims to educate employees in higher education on the importance of wellness through a teach-do-reflect model.

Methods: Discover Wellness is a seven week program led by students, where participants meet virtually twice a week to work on improving specific health behaviors (stress management, nutrition, physical activity, and sleep). At the beginning of each week a trained student from a health promotion and wellness team facilitates a 50 minute wellness session (teach) for the participants. Throughout the week participants are given the opportunity to practice the learned behavior with the provided wellness incentive (do), and at the end of the week they engage in 50 minutes of wellness coaching, facilitated by a certified wellness coach (reflect) to improve mental health, physical health, diet, and injury-preventive exercise. A pre-post survey was used as the summative evaluation tool to assess program effectiveness.

Outcomes: To date, the Discover Wellness research team of 21 students have conducted a needs assessment in higher education, developed the Discover Wellness program, and implemented 56 main sessions at three academic institutions in New York State. Discover Wellness has been successful at providing an opportunity for employees to learn and engage in wellness behaviors, while giving health promotion students a chance to practice what they have learned in the classroom.

Conclusion: This virtual program provides a useful framework that simultaneously educates and supports workers seeking to improve health behaviors, while training future health promotion professionals.

39	Mathematics: "Are mathematicians like all of us?"	Shattuck, Shealyn; Tracey, Madison	Wilcox, Elizabeth	Sofia Kovalevskaya's Influence on the Mathematical World	Sofia Kovalevskaya shaped the mathematics world not only with her mathematical contributions, but by paving the way for women in mathematics, and being persistent in the seeking of knowledge despite the general themes of sexism in the 1800's. Born to parents who restricted her education due to her gender and the fact she was not expected by society to pursue a university education, Sofia was persistent in making sense of mathematics, and learning more. As a child her parents used pages from a textbook on differential and integral calculus as wallpaper, and Kovalevskaya intently observed, trying to gain knowledge from them despite no prior calculus knowledge, or math guidance in general, to begin with. Such was the case for Sofia as she fought her way through societal expectations and biases, even marrying for convenience in order to travel to Germany to study. However, Kovalevskaya was able to prove her intelligence, despite ridicule from male mathematicians. While she was not able to audit the classes she was attending in Germany, she was tutored by Weierstrass, a professor, who gave her private lectures of what he relayed to students at university. He also mentored her, and eventually helped her defend her doctoral thesis. In 1875 she completed the full proof for the Cauchy-Kovalevski Theorem, which had previously only had a special case proven by Augustin Cauchy in 1842. With such amazing contributions to mathematics, physics, and the sciences, despite opposition from the society of the time, Kovalevskaya is truly an admirable mathematician.
40	Mathematics: "Are mathematicians like all of us?"	Kalici, Selim	Wilcox, Elizabeth	Taylor's Theorem and Taylor Series	In 1765 an English mathematician named Brook Taylor stated a famous mathematical theorem, now named after him. Taylor's theorem approximates a k-times differentiable function around a given point as a polynomial of order k. In many areas connected to math, Taylor Series evaluate other-wise impossible integrals, differential equations, or even describe the behavior of surfaces around a point.
41	Mathematics: "Are mathematicians like all of us?"	Rabi'U, Rabiu	Wilcox, Elizabeth	Gottfried Wilhelm Leibniz	Gottfried Leibniz is a prominent figure in the history of mathematics. Leibniz was one of the great representatives of 17th century rationalism and idealism. Unlike other mathematicians, Leibniz started doing research in mathematics late in his life. It was not until he met Dutch physicist and mathematician Christian Huygens that Leibniz began to study mathematics; with Huygens as his mentor, Leibniz's program of self-study that pushed him to make major contributions in mathematics. His greatest achievement was the development of the main ideas of differential and integral calculus. His first critical breakthrough came when he employed integral calculus for the first time to find the area under the graph of a function. Leibniz expressed the inverse relations of integration and differentiation, later called the Fundamental Theorem of Calculus, and introduced many of the modern notations used in calculus.
42	Physics	Wee, Fiona, Bullock, T., Liu Jiaxing, Rupasinghe, P.	Rupasinghe, P.	Measuring the hyperfine splitting of 85Rb 5P1/2 excited- state using Saturated Absorption Spectroscopy∗	The Saturated Absorption Spectroscopy (SAS) was performed to measure the hyperfine energy splitting of 85Rb 5P1/2 excited state using a homemade external-cavity diode laser (ECDL) operating at 795 nm. Any nonlinearities associated with ECDL scans were removed by using a low-expansion confocal Fabry-Perot cavity and hence created a linearized frequency axis for the spectra collected in a fully automated fashion.

| 43 | Psychology | Kempton, Mikaela; Stevens, Hollace | Hu, Sien | The effect of age on the resting state functional connectivity of the amygdala and BNST | This study investigated the resting state functional connectivity (rsFC) of the amygdala and the bed nucleus of the stria terminalis (BNST) in people with different ages. The amygdala and BNST are both involved in emotional processing and show strong responses to fear inducing stimuli. Hence, examining these regions' rsFC might inform us with age-related changes in emotional regulation. We used public data from the Nathan Kline Institute-Rockland Sample. Eighty-three healthy adults (female = 59) completed a five-minute resting state functional Magnetic Resonance Imaging (fMRI). Whole brain rsFC was calculated with the amygdala and BNST being the seed regions, respectively. Regression analysis was performed between age and the rsFC of each seed. The results showed no positive association between age and the amygdala rsFC, but a negative association between age and the amygdala-ventromedial prefrontal cortex (VMPFC) rsFC. On the other hand, age was positively associated with the BNST-angular gyrus / superior frontal gyrus / dorsomedial prefrontal cortex rsFCs, and negatively associated with the BNST-caudate rsFC. These results echo previous research highlighting the change of the amygdala-VMPFC rsFC in aging and provide insights into the change of BNST connectivity over the adult life span. . |
| 44 | Psychology | Kurish, Kristin; Wilmot, Erin | Fay, Adam | Warm Temperatures and Pathogen Avoidance | This ongoing study is investigating how ambient temperature and exposure to signals of pathogen threat affect prejudice and needs for social connection. Previous work has found that temperature is associated with feelings of social connection, such that warm temperatures make people feel closer to others, and cold temperature promote feelings of loneliness and social isolation. Warmth is associated with social and physical closeness from the earliest moments of life (e.g., hugs). Most work on warmth and social affiliation has examined the connection in the context of strong motivations for social closeness. Pathogen threats, in contrast, motivate people to distance themselves from others to reduce the threat of contagious diseases. Indeed, pathogen threats have even been shown to increase certain forms of prejudice, such as ethnocentrism. Because warmth can act as a signal to proximity, in the context of a pathogen threat, warmth may have different effects than those typically observed. We manipulated exposure to pathogen threat or a control state, and measured ambient temperature. The study is assessing whether these variables interact to predict needs for social connection and ethnocentrism. Data collection is ongoing. Implications for the literatures on social affiliation and prejudice will be discussed. . |

| 45 | Psychology | Stevens, Hollace; Kempton, Mikaela | Hu, Sien | The effect of age on the resting state functional connectivity of the striatum | The striatum is a subcortical structure that includes the caudate, putamen, and nucleus accumbens (NAc), all of which are important for motor planning, motivation, and reward perception. Previous research has reported declined striatal functions in older adults. However, more is yet to be explored about the age-related changes in the striatal intrinsic connectivity. In the current study, we used public data from the Nathan Kline Institute-Rockland Sample to examine the resting state functional connectivity (rsFC) of the striatum in people with a broad age range. Eighty-three healthy adults (female = 59) completed a five-minute resting state functional Magnetic Resonance Imaging (fMRI). Whole brain rsFC was calculated with the caudate, putamen, and NAc being the seed regions, respectively. Regression analysis was performed between age and the rsFC of each seed. The results showed positive correlations between age and the caudate rsFCs with the thalamus, superior frontal gyrus (SFG), paracentral lobule, and superior temporal gyrus, and negative correlations between age and the caudate rsFCs with the putamen, middle occipital gyrus, and cerebellum (CBL). Age was positively correlated with the putamen-parahippocampal gyrus (PHG) / fusiform gyrus/ posterior cingulate cortex rsFCs, and negatively correlated with the putamen-insula / SFG rsFCs. Age was positively correlated with the NAc-inferior temporal gyrus rsFC, and negatively correlated with the NAc-insula / putamen / CBL rsFCs. These results suggest that age-related changes in the striatum connections might be related to cognitive deterioration in older adults. | . |
| 46 | Psychology | Strong, Kaitlyn; Thompson, Stephen; Lashinksy; Abigail | Reid, Staceyann; Wolford, Karen | A Preliminary Comparison of the Effects of Mindfulness Based Stress Reduction (MBSR) and Self-Guided Relaxation on Self-Compassion in College Students | A preliminary analysis of a randomized comparison trial of the effects of four sessions of Mindfulness Based Stress Reduction (MBSR) (delivered via a mobile app) and four sessions of Self-Guided Relaxation was conducted on undergraduate participants to assess hypothesized stress reduction and mindfulness and self-compassion enhancement. Various outcome measures, including heart rate variability, perceived stress, mindfulness, and self-compassion were utilized. The present study focused on the impact of MBSR as compared to Self-Guided relaxation on participant's level of self-compassion in a pre-post comparison analysis. Several participants N=12 did not complete the study, two never started the study, and ten dropped out after 1, 2 or 3 sessions (largely due to COVID-19 exposure/quarantine or isolation protocols, stress or academic concerns), only 2 had previously practiced relaxation/meditation, and 3 reported having stress-related conditions. Eleven participants (55% female; mean age = 20.6) completed the study and all four sessions of either mindfulness-based stress reduction delivered via mobile app N=4 or self-guided relaxation N=7. The pre-post change scores on the measure for self-compassion were higher overall but not significant on a paired sample t-test, Self-Compassion Pretest X =2.7795, Self-Compassion Posttest X=2.8932; t=-.622 (p = .55) (95% confidence interval -.750-.398). There were not enough completed participants in each group thus far to make a group comparison. Pretest self-compassion total scores were correlated with posttest self-compassion total scores (.078). We plan to continue the study in the spring to obtain enough participants to run the group comparisons. | . |