

**ASDRP Summer 2020 Exposition Schedule**  
**August 23, 2020**  
**Student Researcher Presentations**  
**1:30pm-3:45pm**

Time	Room	Department	Project Title	Description	Advisor	Authors	Room Links
1:30-1:45	1	Chemistry, Biochemistry & Physics	Thymoquinone and Piperine-loaded nanostructured lipid particles: preparation and in vitro characterization	Thymoquinone, a potent anticancer drug, has poor bioavailability. Piperine, an alkaloid from Piper nigrum act as a bio enhancer of structurally and therapeutically diverse drugs. In this study nano-lipid formulation was prepared to improve thymoquinone's pharmacokinetic profile in combining with piperine.	Gayathri Renganathan	Caitlynn Tran, Maya Jagota, Sruthi Rameshkumar, Tiffany Wang, Megna Sankaranarayanan	<a href="#">Einstein Room 1</a>
1:30-1:45	2	Computer Science & Engineering	Analyzing Settlement Distribution of Marine Invertebrates in the Santa Barbara Channel	Analyzing settlement distributions of marine invertebrates in the Santa Barbara Channel by determining correlations between different species, statistically determining differences between data retrieval methods, and applying autoregressive technique to predict invertebrate counts over time.	Karishma Johnson	Arnab Cherukuthota, Rayland Ho, Shafin Haque, Divya Murugan, Srivishal Sudharsan	<a href="#">Franklin Room 2</a>
1:30-1:45	3	Chemistry, Biochemistry & Physics	Docking Software Analysis	Eight distinct docking softwares were evaluated against ten functionally diverse protein-ligand crystal structures with known binding affinities.	Harman Brah	Docking: Veda Kamaraju, Tanusree Banerjee, Shreya Sundar, Aditi Karthik	<a href="#">Kepler Room 3</a>
1:30-1:45	4	Chemistry, Biochemistry & Physics	Chemical synthesis, structure-activity relationship, and photobiological activity of Berberine and related Analogs	Berberine is a natural product alkaloid whose analogs have been reported to have a wide variety of medicinal properties. We synthesized various novel Berberine analogs and test their antimicrobial efficacy. Additionally, we conducted a computational analysis of these compounds to determine the viability of such analogs prior to screening.	Edward Njoo	Sarah Su, Aashi Shah, Karthikha Sri Indran, Sarada Rajamanickam, Andrew Wang, Meher Jain, David Iglesias, Kara Tran, Ava Fu, Sohie Pal	<a href="#">Newton Room 4</a>
1:30-1:45	5	Biological, Human, and Life Sciences	Alzheimer's Polyphenol Study via Peppermint Stress responses	This study is in peppermint plants which produce a chemical called polyphenols which are used in studies to combat Alzheimer's disease. This group is trying to drought stress the plants as well as apply plant hormones during stress to see if there is a higher production of polyphenol for Alzheimer's studies.	Soumya Suresh	William Leung, Bhakti Parmar, Ishant Goel, Ishika Kolluru, Nisha Anadure	<a href="#">Lyll Room 5</a>
1:30-1:45	6	Computer Science & Engineering	COVID-19 and symptoms		Keshav Rao	Aadhi Kumaraswamy, Aditya Mittal, Megan Jacob, Rohan Ayyagari, Henry Zhao	<a href="#">Pauling Room 6</a>
1:30-1:45	7	Biological, Human, and Life Sciences	Effects of Caloric Restriction on Mitochondrial Function in <i>Saccharomyces Cerevisiae</i>	Caloric restriction is a natural dietary intervention that has been shown to increase lifespan, regulate oxidative stress, and reduce chronic inflammation. Here, we explored the dose-dependent effects of calorie restriction on mitochondrial function in <i>Saccharomyces Cerevisiae</i> using an acetic acid stress-induced model.	Peter Le	Nishant Chadha, Angela Jiao, Nambita Sahai, Aditi Venkatraman, Aditya Mittal	<a href="#">Mendel Room 7</a>
1:30-1:45	8	Chemistry, Biochemistry & Physics	Chemical synthesis and mechanistic enzymology studies of para-substituted and sterically-hindered nitrophenyl esters using the Hammett linear free-energy relationship	Colorimetric enzyme substrates can be used to probe the relative stereoelectronic effects that define the mechanisms of enzymatic catalysis, increasing biocatalytic efficiency and streamlining syntheses of complex compounds. Through the synthesis of para-substituted nitrophenyl benzoate and sterically hindered esters, we conducted Hammett LFER studies on proton transfer events during biocatalysis.	Edward Njoo	Selin Kocalar, Catherine Zhou, Jadon Tan, Alex Liu, Elliott Chen, Aylin Salahifar, Pranjal Verma, Saanvi Pemmaraju	<a href="#">Curie Room 8</a>
1:30-1:45	9	Chemistry, Biochemistry & Physics	Synthesis and Structure-Activity Relationship of 2-substituted Benzimidazole KRAs inhibitors	Kirsten rat sarcoma viral oncogene homolog (KRAS) is a protein involved in cell differentiation and apoptosis; when mutated, it contributed to cancerous growth. Herein, we designed, synthesized, and tested two-substituted benzimidazole KRAS inhibitors.	Scott Clark/Harman Brah	Prachi Heda, Khushi Kethana, Himaja Kodi, Mathavan Murali, Pratyush Singh, Alivia Zhang, Lakshman Swaminathan, Siddhartha Javvaji, Aarush Agrawal, Radha Srinivasan, Sareen Choyi, Srinivasa Akhlesh Nidamanuri, Raghav Goll, SriLakshmi Varma	<a href="#">Dalton Room 9</a>
1:45-2:00	1	Chemistry, Biochemistry & Physics	Synthesis and characterization of novel nickel nanomaterials	Synthesis and characterization of novel nickel nanomaterials are carried out using available literature. Compared to the industry grade platinum over carbon catalyst, Nickel Nanoparticles are a low-cost, high-stability, and high activity nanomaterial for catalyzation of the oxygen reduction reaction found in proton exchange membrane fuel cells.	Nilai Patel	Jonnathan Emmons, Jackson Tabish, Esha Goru, Nikhil Jagota	<a href="#">Einstein Room 1</a>
1:45-2:00	2	Biological, Human, and Life Sciences	Varying treatments of Cu-chelators to reduce the aggregation of Ab peptides in adult transgenic C. elegans	Brain copper is a vital biometal to metal ion homeostasis in the brain. Large concentrations of copper in the environment have been shown to accelerate the aggregation of Ab peptides. We evaluated the treatment of copper chelators to reduce aggregation to determine its effect on the lifespan of transgenic C. elegans	Carly Truong	Sumedha Goyal, Evangelina Kalathoti, Janani Prasad, Zaid Vellani, Nicholas Wong	<a href="#">Franklin Room 2</a>
1:45-2:00	3	Chemistry, Biochemistry & Physics	Novel $\alpha$ -Hederin-Loaded PLGA Nanoparticles as a Treatment for Hepatocellular Carcinoma and Glioblastoma	Alpha-hederin, a triterpenoid saponin with potent anti-cancer activity, was loaded into PLGA nanoparticles through nanoprecipitation. The entrapment efficiency and release profile were quantified with spectroscopic methods. Furthermore, we performed an MTT assay to determine the cytotoxicity of our nanoparticles in C.elegans model. Simultaneously, docking was performed to model alpha-hederin's possible in-vivo pathways.	Gayathri Renganathan	Vivek Garg, Bryant Wong, Angelina Kalathoti, Rohit Soumya Suresh	<a href="#">Kepler Room 3</a>
1:45-2:00	4	Computer Science & Engineering	Quantum Computing and the Stock Market	The stock market has developed into a sensitive, complex and chaotic system. We use a multifaceted system of chaos theory, statistical analysis, and refinement methods to predict stock market movement.	Larry McMahan	Adarsh Bulusu, Adithya Palle, Mridul Saraf, Krish Kainth, Showmen Talukder, George Austin	<a href="#">Newton Room 4</a>
1:45-2:00	5	Computer Science & Engineering	Radio Astronomy	Using generally available, low-cost satellite receivers to construct instrumentation used to interrogate the portion of the electromagnetic spectrum to look for signals indicating emission spectra of galactic [Milky Way] objects including, but not limited to molecular Hydrogen, dark molecular H <sub>2</sub> clouds & Pulsar objects.	Robert Downing	Curtis Lam	<a href="#">Lyll Room 5</a>
1:45-2:00	6	Chemistry, Biochemistry & Physics	Computational Investigation of Berberine Derivatives and their Binding Affinities to Anti-Parallel DNA G-Quadruplex	Berberine has been demonstrated to have a range of medicinal properties; three classes of berberine were designed and screened against antiparallel DNA G-Quadruplex structures, which are associated with cancer.	Harman Brah	Jiya Bhatia, Rahul Rajeev, Jagannath Prabhakaran, Brian Cisto, Carina Chen	<a href="#">Pauling Room 6</a>
1:45-2:00	7	Biological, Human, and Life Sciences	Hypoglycemic Effect of Bioactive Compounds in Bitter Melon on <i>Caenorhabditis elegans</i>	Momodica Charantia (Bitter Melon) is known to have hypoglycemic properties which can potentially be used to control blood glucose levels in diabetic patients. Here we will isolate the hypoglycemic agent in bitter melon and test its efficacy on C. elegans and compared it to a common diabetic drug	Kavita Gandhi	Frances Jing, Prachi Roy, Yuvraj Walla, Dhriti Avala, Anushka Wagle, Srutik Nagamalla, Kuvam Bhatnagar	<a href="#">Mendel Room 7</a>
1:45-2:00	7	Computer Science & Engineering	Laser Astronomy	The design, fabrication & construction of an observational instrument based on lasers of differing wavelengths to discover events that could indicate the deformation of the space-time continuum.	Robert Downing	Shiva Kalyan Rajavaram, Jason Tse	<a href="#">Mendel Room 7</a>
1:45-2:00	8	Computer Science & Engineering	Solar panel output	Predict output of solar panel based on photographs	Suresh Subramanian	Krish Ananth, Aarav Urgeonkar, Kevin Pradjinata, Kashyap Patel	<a href="#">Curie Room 8</a>

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1:45-2:00	9	Biological, Human, and Life Sciences	Influence of Environmental and Internal Factors on the Perception of Intelligence Amongst High School Students	This exploratory study examines the effect of environmental factors on the perception of intelligence according to Gardner's theory of multiple intelligences. High school students completed a survey that assessed various environmental factors and had students rate their perception of intelligence through scenarios that described the different types of intelligence.	Katelyn Hakinson	Hridini Dave, Rishitha Kona, Shreya Musini, Anwika Palle	<a href="#">Dalton Room 9</a>
2:00-2:15	1	Computer Science & Engineering	Reflection of Political Bias within YouTube's Recommendation Algorithms	Our research aims to provide a novel understanding of YouTube's reflection of user base political bias within its search and video recommendation algorithms. Our experiments indicate that YouTube disproportionately ranks left-leaning videos above right-leaning videos within the top 3 search results. However, YouTube actually minimizes the magnitude of bias within subsequent cycles of video recommendations. However, we also find that YouTube has a greater minimization effect with right-leaning minimally biased seed videos than its left-leaning counterparts and a greater minimization effect with left-leaning extremely biased videos than their right-leaning counterparts. Ultimately, our results provide a nuanced understanding of YouTube's reflection of political bias and have vast potential implications.	Phil Mui	Michael Lutz, Natraj Viravan, Sanjana Gadaginmath, Shrooms Srivatsan, Atharva Gupta	<a href="#">Einstein Room 1</a>
2:00-2:15	2	Chemistry, Biochemistry & Physics	Synthesis of 6-benzylaminopurine Analogs	Cytokinins are plant hormones which prevent cell death and promote cell division. Through the synthesis of analogs of 6-benzylaminopurine, a synthetic cytokinin, we created a library of viable analogs with our findings from <i>in-silico</i> and <i>in-vivo</i> methods. Through our studies, we hope to advance the prevention of neurodegenerative amyloidogenic diseases.	Edward Njoo	Shloka Raghavan, Shreya Anand, Ananya Vittaladevuni, Aashi Shah, Aylin Salahifar, Riya Abiram, Catherine Zhou, Priya Chanda	<a href="#">Franklin Room 2</a>
2:00-2:15	3	Computer Science & Engineering	3D Printed Fiber Polarization Controllers	We design and 3D print a fiber polarization controller at a tenth of the cost of commercial alternatives.	Calvin Leung	Shivansh Hedaoo, Joyce Luo, Lavanya Neti, Jonathan Tam	<a href="#">Kepler Room 3</a>
2:00-2:15	4	Biological, Human, and Life Sciences	Isolation and inhibition of psychotropic fungi from dairy products	Isolation of fungi from dairy products and control their growth using essential oils	Nardeen Mikhail	Leela Mouli, Ashley Cheng, Isha Medikonduru, Akshaya Ramakrishnan	<a href="#">Newton Room 4</a>
2:00-2:15	5	Computer Science & Engineering	Sports Prediction		Keshav Rao	Saarth Gaonkar, Eshan Prakash, Darren Tang	<a href="#">Lyell Room 5</a>
2:00-2:15	6	Computer Science & Engineering	Astrophysics COMPREHENSIVE HABITABILITY INDEX (CHI)	We present the Comprehensive Habitability Index (CHI), which considers multiple exoplanetary features not only able to determine a planet's similarity to Earth, but also its potential to serve mankind with its resources, location, and safety.	Larry McMahan	Luke Ponssen, Nick Falk, Kenneth Ng, Arnav Srivastava, Samyak Ghevaria, Adarsh Bulusu	<a href="#">Pauling Room 6</a>
2:00-2:15	7	Biological, Human, and Life Sciences	Emotional Impact of Covid-19	The study quantitatively measured changes in various lifestyle/habit changes of adolescents and compared that to self reported scores to gauge the overall impact of covid-19 on emotional/mental health.	James Guo	Anna Truong, Sanjana Parikh, Reva Srivastava, Emily Goyal, Ansh Kharbanda	<a href="#">Mendel Room 7</a>
2:00-2:15	8	Computer Science & Engineering	Modeling the Host Galaxies of Fast Radio Bursts	We use convenient observables to model the dispersion measure contribution of the host galaxy of fast radio burst to the observed dispersion measure.	Calvin Leung	Shrishi Ganguli, Asher Jiang, Harshini Manian, Jonathan Tam, Alex Yang	<a href="#">Curie Room 8</a>
2:00-2:15	9	Chemistry, Biochemistry & Physics	Examining Yogurt Bacterial Strains for Horizontal Gene Transfer	Horizontal gene transfer (HGT) allows microbes to adapt to various environments. We sought to identify if HGT occurs within the strains of bacteria present in yogurt.	Kavya Tallapaka	Austin Gou, Anika Edara, Shivani Rajavaram	<a href="#">Dalton Room 9</a>
2:15-2:30	1	Biological, Human, and Life Sciences	Factors that Influence the Level of Stigma that Individuals With Mental Illness Experience	Employment of those with a mental illness has been shown to improve an individual's quality of life. This study examined whether stigma associated with the label of mental illness, type of mental illness, and treatment had an impact on the likelihood of gaining employment.	Katelyn Hakinson	Samantha Chou, Kirithi Shankar, Anam Mughal, Anmol Bhide	<a href="#">Einstein Room 1</a>
2:15-2:30	2	Computer Science & Engineering	Determining Correlations Between Demographic Factors, Country Based Conditions and COVID-19 Mortality Rate	Supervised machine learning techniques, including binary classification decision trees and random forests, were used in order to identify factors placing individuals at a higher risk for death due to COVID-19, both on a demographic scale as well as an international scale. From the analysis conducted, the most prominent factors affecting COVID-19 mortality rates at a demographic level were found to be patient age, the date the patient tested positive, and whether the person was afflicted by chronic disease. At an international level, the most prominent factors were found to be the country's social support, perceptions of corruption in the country, and overall generosity of the citizens in the country, as measured by the happiness index. Altogether, these factors indicate which countries, as well as which individuals within those countries, face a higher mortality risk from COVID-19.	Phil Mui	Raj Thota, Karthik Mittal, Miha Bhaskaran, Arjun Premnath, Aryan Parekh	<a href="#">Franklin Room 2</a>
2:15-2:30	3	Chemistry, Biochemistry & Physics	Screening of Natural Polyphenol Library for Inhibition of Amyloid Beta Aggregation	In this project, we have examined the ability of a specific few natural product polyphenols in inhibiting the aggregation of amyloid-beta, a protein known to cause Alzheimer's when mutated. Computational docking and in vitro assays were conducted to determine the viability of polyphenols. We have also recounted various failed attempts at in vivo experimentation with the nematode <i>C. elegans</i> .	Gayathri Renganathan	Kavya Patel, Thomas Lee, Kavya Anand, Tanish Satish, Tvisha Nepani	<a href="#">Kepler Room 3</a>
2:15-2:30	4	Computer Science & Engineering	Unemployment rate prediction	Predict unemployment rate based on characteristics of a location	Suresh Subramanian	Andrew Cheng, Aathithya Selvam, Pranav Damal, Ayush Saha	<a href="#">Newton Room 4</a>
2:15-2:30	5	Computer Science & Engineering	Atomic Clocks for Dark matter detection	We develop a Python wrapper around a popular relativistic atomic structure code and as a proof of principle we evaluate the sensitivity of neutral radium clocks to X17-like dark matter.	Calvin Leung	Laasya Babbelpati, Vinay Hair, Alisha Gadaginmath, Lavanya Neti, Mingxin Wang	<a href="#">Lyell Room 5</a>
2:15-2:30	6	Chemistry, Biochemistry & Physics	Synthesis and In-silico Screening of a Library of Eugenol Analogs as Potential Neuroactive GABA Receptor Ligands	Eugenol, a natural allylbenzene small molecule, is notable because of its biological properties, including its potential against neuroactive GABAA receptor ligands which affect epilepsy. Through the synthesis of several eugenol analogs and a computational screen against the $\alpha 1\beta 2\gamma 2$ GABAA receptor protein, we explored novel mechanisms of action in attenuating neurological diseases.	Edward Njoo	Aashi Shah, Amanda Pang, Asavari Gowda, Pranjal Verma, Priya Chanda, Shamita Bhattacharjee, Heidi Wang	<a href="#">Pauling Room 6</a>

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Time	Room	Department	Project Title	Description	Advisor	Authors	Room Links
2:15-2:30	7	Biological, Human, and Life Sciences	Genetic Characterization and Comparison of Stress Responses between a crop species and an invasive species: Kale and Black Mustard	The experiment is to stress crop plants and invasive, drought-tolerant plants to compare the stress responses via hydrogen peroxide measurements. This research is used to determine how invasive plants steel themselves against stress and how hydrogen peroxide levels contribute to this resistance to abiotic stressors.	Soumya Suresh	Archana Satish, Arianna Li, Chahak Gupta, Erin Yang, Suhana Shrivastava,	<a href="#">Mendel Room 7</a>
2:15-2:30	8	Computer Science & Engineering	Analyses and Correlation Between Mouse Neural and Visual Data	Data analysis of the mouse, Krebs', neural and visual data to identify correlation between activity in brain regions and conjunctively study the corresponding physical activity in video format	Karishma Johnson	Meera Jagota, Garima Upadhyay, Akshat Parikh, Mahika Modi, Hritika Chaturvedi	<a href="#">Curie Room 8</a>
2:15-2:30	9	Chemistry, Biochemistry & Physics	Efforts towards optimization of the Biginelli cyclocondensation reaction and anti-proliferative activity of 2,4-dihydropyrimidines as small molecule mitosis regulators	Monastrol is a small molecule anti-mitotic inhibitor of the human motor protein kinesin Eg5, and we have focused our work on developing structurally similar dihydropyrimidine (DHPM) analogs through the Biginelli cyclocondensation reaction. In addition to the analogs of monastrol, we also have worked on the synthesis of beta keto esters, nickel-catalyzed Heck coupling reactions, and <i>in silico</i> studies of our DHPM analogs.	Edward Njoo/Tallapaka	Krithikaa Premnath, Aishi Keshav Rao, Ria Kolala, Selin Kocalar, Emma Le, Aishwarya Yuvaraj, Lara Panda, Tanya Jain, Shloka Raghavan, Diya Soumya Suresh, Amelyn Phang, Muheema Husain, Trishla Mehta, Rhea Ray, Chandraki Chatterjee, Aarush Maddela, Garv Mehdiratta	<a href="#">Dalton Room 9</a>
2:30-2:45	BREAK						
2:45-3:00	1	Biological, Human, and Life Sciences	Detection and control of spoilage fungi isolated from vegetables and fruits	Isolation of fungi from vegetables-fruits/ control their growth	Nardeen Mikhail	Sadhana Chari, Isha Kale, Kimberly Khow, Katherine Xie, Ria Nair	<a href="#">Einstein Room 1</a>
2:45-3:00	2	Computer Science & Engineering	Demographic Bias in Unemployment Across the United States during the 2020 COVID-19 Pandemic	Recently, several articles published that Black POC and their communities had higher mortality rates than other races due to a lack of resources. Through our statistical analysis, we studied whether certain groups (sex and race/ethnicity) have been economically disproportionate affected in terms of unemployment rate. We also looked at counties to investigate whether or not there existed a difference in increase in points of unemployment rate in counties with higher minority populations.	Phil Mui	Aditya Iyengar, Maitihili Kumar, Justin Lin, Angelina Loh, Richard Yin	<a href="#">Franklin Room 2</a>
2:45-3:00	3	Chemistry, Biochemistry & Physics	Activity of Functionalized Graphene Quantum Dots for Dye Sensitized Solar Cells	Graphene Quantum Dots are a low cost nanomaterial that exhibit great activity within DSSC's. Functionalization of Graphene Quantum Dots allows for enhanced voltage and current output when tweaked to absorb near infrared wavelenghts of lights.	Nilai Patel	Aniruddh Soumya Suresh, Masroor Uddin, Samyukta Athreya, Shivani Manivasagan, Adrian Kao	<a href="#">Kepler Room 3</a>
2:45-3:00	4	Computer Science & Engineering	Analysis of feature importance's of COVID-19 cases and deaths	Our research focuses on developing a Regressor to link COVID cases and COVID deaths with common population factors to see what factors make certain populations or groups more susceptible to the spread of COVID and its more severe symptoms. We then postulate which groups are more susceptible to the spread of COVID and which groups are more susceptible to death via COVID.	Samuel Fendell	Anish Palvai, Steffi Mathew, Cara Burgess, Dishita Hawar, Jamie Tan, Arul Verma	<a href="#">Newton Room 4</a>
2:45-3:00	5	Computer Science & Engineering	Voynich Manuscript	Using machine learning to analyze a medieval manuscript written in an unknown source language, using an unknown character set, for evidence of known words &/or phrases	Robert Downing	Ojasw Upadhyaya, Riya Bhatiaa, Maxine Wua, Abhaw Harpalania, Sanjita Pamidimukkala, Divyanshi Singha	<a href="#">Lyll Room 5</a>
2:45-3:00	6	Chemistry, Biochemistry & Physics	Design, <i>in silico</i> screening, and chemical synthesis of rilpivirine analogs as novel non- nucleoside reverse transcriptase inhibitors (NNRTIs)	NNRTIs, or non nucleoside reverse transcriptase inhibitors, are allosteric inhibitors of the reverse transcriptase enzyme in HIV. Although there are no current cures, treatments, including NNRTIs, are currently available. Previous NNRTIs include rilpivirine; our group designed a library of rilpivirine analogs an performed computational screening and chemical synthesis to test the activity of possible NNRTIs.	Edward Njoo	Jeslyn Wu, Charissa Luk, Aishwarya Yuvaraj, Catherine Zhou, Aashi Shah, Neha Mandava, Shamita Bhattacharjee, Riya Abiram	<a href="#">Pauling Room 6</a>
2:45-3:00	7	Chemistry, Biochemistry & Physics	Development & Synthesis of Novel 1,3-Diketone Pyrazole FTO Inhibitors	The fat mass and obesity-associated (FTO) protein has been clinically correlated with obesity; in this study, we design, synthesize, and test diketone pyrazole derivatives against FTO.	Scott Clark/Harman Brah	FTO: Bhavesh Ashok, Harsha Rajkumar, Prahm Reddy, Anvi Surapaneni, Atri Surapaneni, Veda Nayak, Neha Ramesh, Eeshi Uppalapati, Pradyun Singh, Taanvi Banerjee,	<a href="#">Mendel Room 7</a>
2:45-3:00	8	Chemistry, Biochemistry & Physics	Investigation of the effect of mutations on GFP Folding	Reporter assays that use Green Fluorescent Protein (GFP) are essential to in vivo studies of cell health and functional product localization; site directed mutagenesis was employed to track the effects of various mutations on GFP function.	Harman Brah	Yash Kamdar, Arnab Keshav Rao, Sirtaj Bansal, Vedasamitha Padiseti	<a href="#">Curie Room 8</a>
2:45-3:00	9	Biological, Human, and Life Sciences	The presence of Coccidioides immitis, the causative agent of valley fever, in Contra Costa County	It is hypothesized that valley fever is expanding in California and beyond due to climate change. The aim of this study is therefore to investigate if C. immitis is present in soils from Contra Costa County of California, a traditionally non-endemic area of the pathogen. In addition, we propose to identify members within the Ascomycetes species that might be present in the soils of North California, among them other potential pathogens to humans, animals, or plants (e.g. Aspergillus fumigatus).	Prabhjeet Kaur	Vikram Karmarkar, Claire Ma, Natasha Koneru, Preeshia, Sundraj, Bhavya Yanamandra	<a href="#">Dalton Room 9</a>
3:00-3:15	1	Chemistry, Biochemistry & Physics	Synthetic Studies Toward Greener Syntheses of Thymoquinone	Thymoquinone, a known phytochemical compound commonly extracted from Nigella sativa seed oil, has been reported to have antioxidant, anticancer, and anti-inflammatory properties along with other outstanding biological activities. Our group aims to synthesize this natural product by screening various salen ligands, transition metals, and oxidants to find optimal conditions for greener methodology.	Edward Njoo	Ishani Ashok, Stacey Le, Neha Mendava, Aylin Salahifar, Ananya Vittaladevuni	<a href="#">Einstein Room 1</a>
3:00-3:15	2	Chemistry, Biochemistry & Physics	Understanding the Santa Barbara Coastal Beach Wrack Distributions and Relationships	Quantitatively analyze relationships between beach macrophyte wrack's composition, cover, depth, and wet biomass. Further, modeling time series data for forecasting wrack volume over time by cover type.	Karishma Johnson	Luana Yeung, Ethan Liu, Arush Agarampur, Erwan Pal	<a href="#">Franklin Room 2</a>
3:00-3:15	3	Computer Science & Engineering	COVID-19 risk assessment	Predict the Coronavirus risk rating for a location	Suresh Subramanian	Arnab Gulani, Ember Lu, Yojita Sharma, Kalyani Binu Sindhu	<a href="#">Kepler Room 3</a>
3:00-3:15	4	Chemistry, Biochemistry & Physics	De novo design and chemical synthesis of dehydroalanine-based inhibitors of L-cathepsin as SARS-CoV-2 therapeutics	SARS-CoV-2, commonly known as the coronavirus, is currently one of the most widespread viruses and has caused a global pandemic, making the need for therapeutics highly significant. Our group aimed to synthesize and screen dehydroalanine-based compounds with various nucleophile substitutions as inhibitors of L-cathepsin, an important lysosomal endopeptidase enzyme involved in the infection of the SARS-CoV-2 into cells.	Edward Njoo	Krithikaa Premnath, Ayeeshi Poosarla, Sarah Su, Jeslyn Wu, Karthikha Sri Indran, Aishi Keshav Rao, Aishwarya Yuvaraj, Ishani Ashok, Ava Fu, Emma Le, Heidi Wang, Meher Jain, Sanika Sharma, Sarah Wang-Zhou, Shreya Anand, Saanvi Pemmaraju	<a href="#">Newton Room 4</a>

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3:00-3:15	5	Computer Science & Engineering	Nicotine withdrawal & COVID-19	The relationship between nicotine withdrawal & COVID-19	Keshav Rao	Aryaman Kukal, Ayaan Haque, Yamuna Keshav Rao, David Cho	<a href="#">Lyell Room 5</a>
3:00-3:15	6	Computer Science & Engineering	Fast Radio Bursts	Using generally available, low-cost mobile devices [RaspberryPis] to form an Internet of Things [IoT] network of instrumentation to look for signals in the 1GHz range evidencing an FRB event.	Robert Downing		<a href="#">Pauling Room 6</a>
3:00-3:15	7	Biological, Human, and Life Sciences	Effect of Ab peptides on short and long term associative memory in C. elegans	Evaluated how Ab peptides aggregating in neurons and muscles of transgenic C. elegans can affect their ability to form short term and long term associative memory with odorants	Carly Truong	Brian Fu, Aryan Mangla, Sophie Menon, Darsh Singhania, Khushi Varshney	<a href="#">Mendel Room 7</a>
3:00-3:15	8	Biological, Human, and Life Sciences	Genetic Characterization and Comparison of Stress Responses between a crop species and an invasive species: Cassava and Castor Bean	The experiment is to stress crop plants and invasive, drought-tolerant plants to compare the stress responses via hydrogen peroxide measurements. This research is used to determine how invasive plants steel themselves against stress and how hydrogen peroxide levels contribute to this resistance to abiotic stressors.	Soumya Suresh	Aarushi Deshpande, Shaina Ambashta, Tanvi Sri Sai Penugonda, Yashvi Patel	<a href="#">Curie Room 8</a>
3:00-3:15	9	Biological, Human, and Life Sciences	Isolation and Characterization of Probiotic Bacteria in Greek Yogurt and Kimchi	The composition of an individual's gut microbiome is linked to numerous health benefits such as reduced inflammation, increased immune system function, and improved digestion. In this study, we evaluated the <i>in vitro</i> probiotic properties of various bacteria isolated from Greek yogurt and fermented kimchi.	Peter Le	Andrea Li, Aishwarya Manga, Sanjana Narayanan, Anshika Ojha, Manjari Talasila, Cameron Tran	<a href="#">Dalton Room 9</a>
3:15-3:30	1	Chemistry, Biochemistry & Physics	Screening of a natural product polyphenol library for inhibition of Amyloid beta 42 aggregation	Derivatives of the natural product polyphenol Epigallocatechin gallate were screened for inhibition of amyloid beta 42 aggregation, a structure associated with Alzheimer's Disease.	Scott Clark/Harman Brah	Ayush Bajaj, Andrew Su, Vikas Ummadisetty, Aditi Ravindra, Arnav Surpur, Preston Chu, Veena Ummadisetty, Stavan Patelia, Omkar Toro, Srikar Vemula	<a href="#">Einstein Room 1</a>
3:15-3:30	2	Computer Science & Engineering	Machine Learning Title: Using Demographic Data Along with Machine Learning and Regression Techniques to Predict the Future Impact of COVID-19 across the United States.	We used Exponential Smoothing algorithms in Microsoft Excel and Multiple Linear Regression algorithms in R to predict which states in the United States will be impacted the most by COVID-19 in the near future.	Larry McMahan	Shivam Adeshara, Bryan Ambrose, Shiho Amster, Vishal Bansal, Ziyen Batada, Shalini Krish, Reina Pradhan	<a href="#">Franklin Room 2</a>
3:15-3:30	3	Chemistry, Biochemistry & Physics	Inhibition of L-Cathepsin via Isolation of Thiosulfates from Allium Cepa towards treatment of SARS-CoV-2 Infection	Coronavirus enters the endosome and acidifies the cellular environment which allows for its RNA to seep into the cytosol. During the acidification process, L-cathepsin (cysteine protease) proteolytically cleaves the viral RNA and allows it to presume replication of proteins such as spike glycoprotein and M protein. Thiosulfates, an organosulfur compound, is known to inhibit L-Cathepsin activity. Here we will extract thiosulfates from Alliums and test its efficacy in inhibiting L-Cathepsin activity.	Kavita Gandhi	Lucas Sun, Ayesha Ashraf, Anusha Sharangpani, Sana Husain, Bikram Bains, Anthony Tran, Alina Zeng, Sri Manasa Jandhyala	<a href="#">Kepler Room 3</a>
3:15-3:30	4	Computer Science & Engineering	Mortgage rate prediction	Mortgage rate prediction depending on demographics of a city	Suresh Subramanian	Sakshi Nikte, Vignesh Rangarajan, Tiffany Zhang	<a href="#">Newton Room 4</a>
3:15-3:30	5	Biological, Human, and Life Sciences	Genetic Characterization and Comparison of Stress Responses between a crop species and an invasive species: Radish and Wild Radish	The experiment is to stress crop plants and invasive, drought-tolerant plants to compare the stress responses via hydrogen peroxide measurements. This research is used to determine how invasive plants steel themselves against stress and how hydrogen peroxide levels contribute to this resistance to abiotic stressors.	Soumya Suresh	Aanya Bhatia, Angelina Chen, Gautham Sudhakar, Justin Ho, Tarun Srivatsan	<a href="#">Lyell Room 5</a>
3:15-3:30	6	Biological, Human, and Life Sciences	Decision-Making: The Effects of the Advisor's Age, Gender, and Relationship to the Decision-Maker	Research has found mixed results on how age, gender, and relationship of the advisor to the decision-maker effect the likelihood of individuals accepting advice. This study seeks to add clarity to literature about which factors of the advice-giver influence the decision-maker, while controlling for personal relationships with the hypothetical advice-giver.	Katelyn Hakinson	Kaylee Wei, Sunandhita Vempati, Rucha Kulkarni, Nikhil Kichili, Samaradh Kanugula	<a href="#">Pauling Room 6</a>
3:15-3:30	7	Chemistry, Biochemistry & Physics	Development of novel inhibitors of TP53 Induced Glycolysis Regulatory Phosphatase (TIGAR) as a strategy of modulation of the p53 tumor suppressor pathway in anticancer therapy	TP53 Induced Glycolysis Regulatory Phosphatase's (TIGAR) expression is upshifted in some cancers, and may downshift apoptotic rates in cancer cells. To that end, we designed, synthesized, and screened compounds that could inhibit TIGAR.	Harman Brah/Edward Njoo/Tallapaka	Ayeeshi Poosarla, Sarah Su, Krithika Premnath, Andrew Wang, Asavari Gowda, Jeslyn Wu, Ananya Anand, Ishani Ashok, Shamita Bhattacharjee, Trisha Dharmapuri, Sophia Fung, Aman Gupta, Saira Hamid, Meher Jain, Tanya Jain, Ria Kolala, Emma Le, Stacey Le, Monica Manmadkar, Tejas Miryala, Thoya Raman, Aishi Keshav Rao, Simrun Sakhrani, Sanika Sharma, Ananya Vittaladevuni, Sarah Wang-Zhou, Grace Yang, Aishwarya Yuvaraj	<a href="#">Mendel Room 7</a>
3:15-3:30	8	Biological, Human, and Life Sciences	SARS-CoV-2 ddRNAi Delivery Methods	This group is continuing to do work on the SARS-Cov-2 virus as they created an interfering RNA strand that targets the ORF 1ab viral polyprotein that is responsible for transcription in the coronavirus cell. They have been and will continue to work on how to deliver this RNAi into the viral cell.	Soumya Suresh	Aarav Dubey, Ishya Mukkamala, Renesh Gudipati, Saahil Das, Avani Sethi	<a href="#">Curie Room 8</a>
3:15-3:30	9	Computer Science & Engineering	Exoplanets	Using machine learning to analyze NASA-provided daatasets for planetary objects that may be capable of supporting life as we know it.	Robert Downing	Allen Chen, Hrithik Pai, Aaryan Rustagi, Rishab Pangal, Aditya I, Akhil Deshmukh, Aaryan Divate, Stanley Luo, Aaron Li, Aarav Sharma.	<a href="#">Dalton Room 9</a>
3:30-3:45	1	Biological, Human, and Life Sciences	Modeling alpha-synuclein aggregation in E.coli as a Parkinson's Disease cell model	$\alpha$ -synuclein is a major component in lewy bodies that are present in affected neurons in Parkinson's Disease. We aimed to establish a cell model for PD using E. coli to study the aggregation of $\alpha$ -synuclein.	Carly Truong	Amulya Harish, Allen Ni, Tiffany Ho, Anirudh Ramadurai, Bhumika Iroji, Sanya Chhabra	<a href="#">Einstein Room 1</a>
3:30-3:45	2	Computer Science & Engineering	Crime rate prediction	Predict crime rate for a location	Suresh Subramanian	Rohan Adwankar, Jason Vu, Priyanka Jakka	<a href="#">Franklin Room 2</a>

**ASDRP Summer 2020 Exposition Schedule**  
**August 23, 2020**  
**Student Researcher Presentations**  
**1:30pm-3:45pm**

Time	Room	Department	Project Title	Description	Advisor	Authors	Room Links
3:30-3:45	3	Computer Science & Engineering	A Study of Influences on US Police Fatal Shooting	We use a machine learning approach to determine what factors are relevant to the police killings of African Americans in the United States to examine why those factors exist and what it reflects on police bias. We focus on the data for the police killings from 2013 to 2019 to develop a machine learning model that classifies whether an African American or non-African American was killed. Our data analysis of detailed US police killings shows that there is clear racial bias against African Americans by the police through the discussion of the implications of our results.	Phil Mui	Anaiy Somalwar, Chinmay Bansal, Nathan Lintu, Rishab Shah	<a href="#">Kepler Room 3</a>
3:30-3:45	4	Chemistry, Biochemistry & Physics	Reactivity-guided molecular design and high throughput virtual screening of a library of potential covalent inhibitors of the main protease of SARS-CoV-2	Virtual high-throughput screening of various Michael acceptors to identify new drug leads that target the COVID-19 virus main protease.	Harman Brah	Karankumar Mageswaran, Ritvik Penchala, Joshua Shi, Shruti Shah, Zuhair Hussain, Krish Patel	<a href="#">Newton Room 4</a>
3:30-3:45	5	Biological, Human, and Life Sciences	Administration of Extracted Drugs such as Quercetin to Alzheimer's A $\beta$ -toxic C. Elegans	Inhibition of acetylcholinesterase (AChE) is the common approach to manage Alzheimer's Disease. Quercetin, a flavonoid, is found to have anticholinesterase properties which is helpful when treating AD. Here we will isolate Quercetin and test its effect on Alzheimer's A $\beta$ -toxic C. elegans and compare it to a AD drug, Memantine.	Kavita Gandhi	Shriya Ramdas, Aniket Das, Sriya Munaga, Aadya Ponangi, Urmi Mukherjee, Simran Tawari, Calan Tran, Nadia Rehman, Varsha Beldona	<a href="#">Lyell Room 5</a>
3:30-3:45	6	Chemistry, Biochemistry & Physics	Synthesis and <i>In-silico</i> studies of Benfotiamine Prodrug Derivatives.	Benfotiamine, a synthetic S-acyl derivative of thiamine effective inhibitor of advanced glycation end products has poor bioavailability. Our study aimed at synthesizing the prodrug derivatives of benfotiamine utilizing Schiff base reactions and investigating pharmacokinetic profiles by employing various computational tools.	Gayathri Renganathan	Ayush Mishra, Shreya Daschoudhary, Brandon Sun, Ryan Wu	<a href="#">Pauling Room 6</a>
3:30-3:45	7	Biological, Human, and Life Sciences	How Accurate is the Public's Perception of Schizophrenia?	Individuals with schizophrenia often face increased stigma because of commonly believed misconceptions about the disorder. We sought to understand the general public's perceptions and beliefs of schizophrenia. This research examined the common misconceptions that the public believes about schizophrenia and how accurate participants' perceptions of schizophrenia are.	Katelyn Hakinson	Ananya Deepak, Aryan Makhija, Sohini Ozo, Aashwin Makhija, Onkaar Paul	<a href="#">Mendel Room 7</a>
3:30-3:45	8	Chemistry, Biochemistry & Physics	Chemical synthesis and antibacterial analysis of beta lactam related analogs	Beta Lactam antibiotics have been of medicinal interest for many years due to their ability to combat bacteria. We have synthesized various novel penicillin analogs to test antibacterial efficacy. Additionally, we have also been focusing on synthesizing the beta lactam ring, the reactive part of all beta lactam antibiotics.	Edward Njoo	Ayeeshi Poosarla, Sohie Pal*, Pranjali Verma*, Ria Kolala, Udbhav Avadhani, Sarah Wang-Zhou, Taylor Do**, Charissa Luk**, Jadon Tan, Alex Liu, Nitya Kuppireddy	<a href="#">Curie Room 8</a>
3:30-3:45	9	Computer Science & Engineering	A simplified approach to account for conformational isomerism in biologically relevant small molecules	Our research has provided a platform to introduce relevant conformer generation in molecular docking and high throughput virtual screening following the principles of conformational isomerism. Cheminformatics packages for the programming language Python such as RDKit have eased the manipulation of chemical compounds in silico. Our group has developed scripts to identify conformational isomers of compounds by the identification and manipulation of specific organic moieties common in small-molecule drug discovery.	Edward Njoo / Robert Downing	Bhaves Ashok, Ayush Bajaj, Yash Jain, Anvi Surapaneni, Kushal Chattopadhyay, Atri Surapaneni, Divyanshu Bhadoria, Divyanshi Singh, Arjun Chandra, Allen Chen	<a href="#">Dalton Room 9</a>