Promoting Interdisciplinary Conversations

2017 Western Research Day Schedule
Friday, May 5th, 2017

9:00 AM - 10:00 AM	Poster setup
10:00 AM - 11:00 AM	Welcome Remarks and Keynote Address *Location: Science Building, Room 125*
11:00 AM - 1:00 PM	WRD Poster Sessions *Location: Science Building Atrium*
1:00 PM - 1:30 PM	Presentation of Provost's Prizes & Closing Remarks *Location: Science Building, Room 125*

Refreshments will be served during the poster session in the Atrium of the Science Building.

2017 Keynote Speakers

Aretha Townsend received a Bachelor's of Arts in Biology from Western Connecticut State University in 2004. In 2012, she was awarded a Master's in Public Health from A.T. Still University. Presently, Ms. Townsend has completed her medical school training at the American University of Integrative Sciences and is working to complete a PhD in Public Health from Walden University. Ms. Townsend's doctoral research focuses on health behaviors of Afro-Caribbean migrant farm workers living and working in the Connecticut River Valley. More specifically, her research investigates health behaviors related to medication compliance and lifestyle modifications in farm workers with Type 2 diabetes.

Ryan Bachman received a Bachelor's of Arts in History from Western Connecticut State University in 2012. In addition, he holds a Master's in History from James Madison University. Presently, Mr. Bachman is a doctoral candidate at the University of Delaware. Mr. Bachman's doctoral research focuses on the Early American practice of human exhibitionism and explores the cultural conditions that led to the popularity of such shows among urban, middle-class audiences. More specifically, his research looks at the 1820-1821 Inuit Exhibition as a case study for the "Indian Exhibitions" that toured the east coast following the War of 1812.

Student Participants

Number	Name	Title
1	Adomaitis, Valerie	**What personality traits correlate with the belief in conspiracy theories?**
2	Akhlaq, Sumra	**Cloning of *Plasmodium falciparum*'s dihydrofolate reductase mutants**
3	Alam, Sadia	**An efficient synthesis of sulfur heterocycles**
4	Alizarchyk, Volha	**Shock wave calculations in diverse applications: new trigonometric essentially non-oscillatory (ENO) schemes for solving non-linear PDEs**
5	Antonaccio, Rebecca	**Riding the waves and tapping into the self: mindfulness vs. empathy**
6	Arteaga, Yesenia	**The effects of pictures and words on memory recognition**
7	Asmar, Anthony	**When fear prevails: Latina immigrant domestic violence victims and reservations about seeking help**
8	Atkin-Dahm, Katherine	**Using GIS to assess the impacts of climate change on the Cape Floristic Region of South Africa**
9	Atkin-Dahm, Katherine	**Conservation genetics of *Protea venusta* contextualized by comparisons with *Protea punctata***
10	Balarezo, Freddy	**Synthesis and photophysical evaluation of 6-aryl-2'-deoxyuridine nucleosides**

11	Ballatore, Christina J. with John Foley and Theodora Pinou.	**Wood turtles (*Glyptemys insculpta*) and hibernation: understanding high and low fidelity**
12	Bates, Steven	**What motivates Puerto Rico to succeed in the World Baseball Classic?**
13	Bawol, Elzbieta	**Legalize it: a joint effort**
14	Begg, Ian with Shawna Herter, Alexis Johnson	**Non-exercise activity thermogenesis and individual variation in predisposition to diet induced obesity in *Mus musculus***
15	Bieber, Alexander	**Exploring solid phase analytical derivation (SPAD) as a sample preparation method for quantitative analysis of pharmaceuticals by gas chromatography-mass spectrometry (GC-MS)**
16	Bissett, Michelle	**Sticky seeds in Podostemaceae: To be (dispersed) or not to be?**
17	Brim, Waverly Rose	**Using GIS to understand risk and antibiotic resistance of *Neisseria gonorrhea* in the United States**
18	Busse, Matthew	**Candlewood Lake and the potential risk of nonpoint source pollution: Results based on GIS analysis.**
19	Coleman, Doneisha	**Expression and purification of dipeptidylaminopeptidase**
20	Coleman, Mykelle with Karissa Milano; Andrew Geers, Ph.D, University of Toledo	**Too high maintenance for me! The effect of dietary restrictions on impressions of romantic partners**
21	Cotto, Kevin with Bryan Vargas	**Does the susceptibility to stress affect the predisposition to develop diet-induced obesity?**

22	Daniels, Taylor	**The effect of makeup use and body size on attractiveness**
23	Dos Santos, Ana with Cassandra Almonte, Waverly Rose Brim	**The effects of exercise on the predisposition for diet-induced obesity in CF-1 outbred strain mice**
24	Dunlap, Tyler	**My new financial advisor is a robot**
25	Fall, William	**Exploring the polarity of cancer cell MUC1 aptamer**
26	Fernandez, Kaitlyn	**The role of cues and stimulus alteration to detect change under the flicker paradigm**
27	Fiorito, Victoria	**Detection of blue-green algae (cyanobacteria) toxin genes in Candlewood Lake and Housatonic River water and sediments**
28	Grant, Nicole	**Mental health offenders in a supervised diversion program**
29	Hoyt, Shane	**Using GIS to predict risk for human-coyote interactions**
30	Joseph, Katherine with Brunella Trotta	**Gender stereotypes on toy preferences**
31	Kalal, Devin	**The "Magneto Problem": Assessing anti-semitism and artistic liberty in American superhero comics**
32	Kaur, Gursimran	**Characterization of a haloacid dehalogenase superfamily enzyme from *Mycobacterium tuberculosis***
33	Khalil, Charbel	**Characterization of Jhp0715**
34	Khan, Madiha	**Progress towards the synthesis of a Baeyer-Villiger nanogel**

35	Krainer, Maximilian	**Method development for arsenic speciation and analysis**
36	Kry, Jenny with Darcy Curillo	**Investigating the effects of social isolation on binge-eating**
37	Kyriakidis, Nick	**English Premier League home field advantage**
38	Lange, Rachel	**Too fat for Lululemon?**
39	Lin, Li Shan	**Fluorescent detection of dT dimers**
40	Lipinsky, Jake	**Historical spatial analysis of *Rosa multiflora* in Connecticut and New England using GIS**
41	Lipinsky, Jake	**A turning point for the West**
42	Lipscomb, Samantha	**Using GIS to investigate potential habitat for New England cottontail conservation**
43	LoCascio, Amanda	**The relationship among dispositional optimism, hardiness, and locus of control**
44	Maggio, Kyle	**Evaluation of sources of news**
45	McCarthy, Matthew	**The relationship of forest edge to deer-vehicle collisions in Connecticut**
46	McFarland, Shannon	**Using GIS to identify potential Connecticut towns at risk for human-black bear interactions.**
47	Michalek, Christopher	**Psychology of design**

48	Monahan, Daniel	**Thirty minutes of voluntary running suppresses high-fat food intake and weight gain in mice**
49	Mownn, Robert	**Study of glutathione reductase/methylene blue interaction using HDX**
50	Neville, Nicole	**Potential for hope spots in Connecticut using GIS**
51	Nunez, Stefanie with Matthew McCarthy, Carlos Cardenas	**Effect of appetite in diet induced obesity**
52	Oliveira, Mario	**Use of GIS to analyze strategic placement of automated external defibrillators (AEDs) in the city of Danbury**
53	Oliveira, Mario with Adriana Kroha	**Does body temperature affect the pre-disposition to diet induced obesity in outbred mice?**
54	Phinney, Karrie	**Parameter identification problem for a single-degree-of-freedom model of a vibrating system**
55	Rahimyar, Abdul H. with Hieu Nguyen	**Pricing options and filtering financial data through wavelet transforms and Monte Carlo simulations**
56	Rollo, Steven with Andrew Figueroa	**Evaluating the technical suitability of open-source RDBMSs to enterprise applications**
57	Romagna, Brittney	**Fifty shades of black and blue: sexual assault and domestic violence recognition as a function of gender and BDSM exposure**
58	Rosenblatt, Heather	**The effects of sleep deprivation and exercise on cognition**

59	Schoenbeck, Lynn	**Turning over a new leaf: Identification of a medieval manuscript leaf**
60	Stokes, Stephany	**The medieval popes' two bodies: internal conflict between church and state**
61	Suquilanda, Daniel with Karen Velez, Shannon McFarland	**An examination of variance in the amino acid sequence of the Na-Cl cotransporter (NCC) in three divergent Threespine Stickleback (Gasterosteus aculeatus) populations**
62	Swenson, Kara	**Plumbing the depths: history of Candlewood Lake**
63	Vargas, Bryan	**The prevalence of hepatitis C in CT: a GIS analysis**
64	Vazquez, Carolyn with Zena Wright	**Quantitative proteomic analysis of malaria parasite treated with chloroquine**
65	Weinberg, Robert	**Cell phone tracking and the fourth amendment conflict**
66	Wooldridge, Tyler	**Radiative transfer in circumbinary disk GG Tau**
67	Yilmaz, Muberra	**Cytochrome c's role in apoptosis of *P. falciparum***

Faculty Participants

Katherine Allocco - History
Maya Aloni - Psychology
Patrice Boily - Biology
Stavros Christofi - Mathematics
Neeta Connally - Biology
Sarah Conrad - Philosophy and Humanistic Studies
Joshua Cordeira - Biology
Nicholas Greco - Chemistry
Robin Gustafson - Psychology
Christine Hegel-Cantarella - Social Sciences
Rondall Khoo - Psychology
Leslie Lindenauer - History
Rotua Lumbantobing - Economics
Yuan Mei-Ratliff - Chemistry
Michelle Monette - Biology
Sean Murthy - Computer Science
Lydia Novozhilova - Mathematics
Bill Petkanas - Communication
Thomas Philbrick - Biological and Environmental Sciences
Judith Prieto - chemistry
Rachel Prunier - Biology
Anne Roberts - Chemistry
Forest Robertson - Chemistry
Ana Rodriguez - Physics, Astronomy, & Meteorology
Divya Sharma - Justice and Law Administration
Xiaodi Wang - Mathematics
Steven Ward - Social Sciences
Robert Weinberg - Justice and Law Administration
Edwin Wong - Biology

Student Abstracts

Listed in alphabetical order by first author

1	**What personality traits correlate with the belief in conspiracy theories?** *Valerie Adomaitis* *Advisor: Rondall Khoo - Psychology* This research will examine some of the types of personality traits which correlate with the belief in conspiracy theories. The theory is that paranoia, distrust of authority, and paranormal beliefs could predict the belief in conspiracy theories. Paranoia and distrust of authority could indicate thinking processes similar to conspiracist beliefs. Paranormal beliefs should indicate that an individual has a low need for cognitive closure, which could also predict conspiracist beliefs. This study will be conducted with the use of a survey to measure conspiracist beliefs, paranoia, distrust of authority, and paranormal beliefs.
2	**Cloning of *Plasmodium falciparum*'s dihydrofolate reductase mutants** *Sumra Akhlaq* *Advisor: Judith Prieto - Chemistry* Dihydrofolate reductase (DHFR) is a strong target for malaria and different types of cancers. However, DHFR has mutated to form resistance towards drugs that target folate metabolism. Therefore, anti-malarials have caused increased mutations. However, once the drug pressure is taken off the field the parasite favors the wild type. To understand the enzyme kinetics and the effect of the mutations, *Plasmodium falciparum* DHFR wild type protein and mutants are cloned into a protein expression vector. The purified protein is needed to use mass spectrometry HDX in order to understand the link between protein structure and function.

3	**An efficient synthesis of sulfur heterocycles** *Sadia Alam* *Advisor: Forest Robertson - Chemistry* The development of new and efficient methods for the formation of C-S bonds is of significant importance and various methods have been developed. However, most of these processes require the substrates to be activated before any reactivity is achieved. In an effort to develop an intramolecular C-S bond-forming process, the project began with syntheses of phosphorothioate intermediates, which were proposed to be the common starting materials used to access libraries of isothiochromanes, thiiranes, and thietanes. In addition, sulfur containing heterocycles have been implicated in numerous biologically active molecules; therefore, the library of compounds will be probed for biological activity.
4	**Shock wave calculations in diverse applications: new trigonometric essentially non-oscillatory (ENO) schemes for solving non-linear PDEs** *Volha Alizarchyk* *Advisor: Stavros Christofi - Mathematics* ENO schemes are numerical techniques for obtaining discontinuous solutions to hyperbolic PDEs that play a crucial role in diverse applications. Their design is reduced to a problem of interpolation, where discontinuities are captured using an error-based ENO stencil selection process for each cell, developed by S. Christofi, that avoids discontinuities and reduces the effects of erroneous oscillations. In this work, we derive a new trigonometric interpolation, the second of its kind, defining divided differences (DDs) and obtaining all interpolation forms. These DDs have the necessary symmetries that allow the use of this ENO stencil selection process.

5	**Riding the waves and tapping into the self: mindfulness vs. empathy** *Rebecca Antonaccio* *Advisor: Bill Petkanas - Communication* Mindfulness has been a growing topic of interest in the past few decades. It has been claimed that mindfulness leads to an individual becoming more non-judgmental, which connects to communicating empathy. This study explored the relationship between mindfulness and empathic communication. No significant relationship was found to be present between these two variables in which it was found that $r^2 = .098$. Mindfulness and empathy appear incompatible with the possibility that empathy may make one unable to focus on his or her own experiences, while mindfulness may have a narcissistic component therefore making these two variables incompatible.
6	**The effects of pictures and words on memory recognition** *Yesenia Arteaga* *Advisor: Rondall Khoo - Psychology* The goal of this study is to examine the effects of words and pictures on memory recognition. Participants will be presented with two sets consisting of the same 30 items; either words or pictures will be shown followed by a distractor video clip. Then they will be tested with either pictures or words. The hypothesis tested is: studying pictures and tested with pictures have the best result. This study is similar to past research, and findings of this study can help determine why some individuals recognize pictures when tested with pictures better than words when they study pictures.

7	**When fear prevails: Latina immigrant domestic violence victims and reservations about seeking help** *Anthony Asmar* *Advisor: Divya Sharma - JLA* This study investigates the variables impeding the utilization of legal remedies designed to protect immigrant Latinas in the United States who are victims of domestic violence. Variables reducing participation in such remedies include mistrust and fear of the legal system, a financial dependency on the abuser, and a desire to fulfill cultural expectations. Furthermore, to receive certain benefits from the government, Latina women may be required to meet specific standards which are often unattainable. This creates a feeling of hopelessness amongst victims. Ultimately, the laws designed to protect these women are essentially useless if the aforementioned barriers are not removed.
8	**Using GIS to assess the impacts of climate change on the Cape Floristic Region of South Africa** *Katherine Atkin-Dahm* *Advisor: Neeta Connally - Biology* The Cape Floristic Region (CFR) of South Africa is inhabited by thousands of endemic plant species. The plants are at risk of habitat range reduction or extinction due to the progressively warming climate. Geographic Information System (GIS) technology was used to assess impact of climate change on the rare *Protea venusta* and the closely related common *Protea punctata*. The analysis was done based on elevation, mean annual precipitation, rainfall concentration, the daily maximum and minimum temperatures, and frost duration. A map was created to visualize the worsening impacts climate change has on the CFR.

9	**Conservation genetics of *Protea venusta* contextualized by comparisons with *Protea punctata*** *Katherine Atkin-Dahm* *Advisor: Rachel Prunier - Biology* Mountain plants respond to the warming climate by migrating upward to more favorable conditions. This may cause encroachment of a common species on rarer species that inhabit the mountain peak. The rare *Protea venusta* is restricted to the mountain peaks of the Cape Floristic Region of South Africa and is potentially threatened by the encroachment of a closely related species, *Protea punctata*. Molecular genetic techniques were used to detect the genetic consequences of habitat loss and encroachment. We expect to detect lower genetic diversity in *Protea venusta* than *Protea punctata* and hybridization between the species.
10	**Synthesis and photophysical evaluation of 6-aryl-2'-deoxyuridine nucleosides** *Freddy Balarezo* *Advisor: Nicholas Greco - Chemistry* The double helical structure of deoxyribonucleic acid (DNA) is made up of two complementary strands composed of an aromatic base connected to a sugar and joined by a phosphodiester backbone. Previously, the coupling of an aromatic group to the base has resulted in enhanced photophysical properties. The novel nucleoside can be selectively excited and its emission can be used to probe the location and its interactions within the DNA grooves. For this experiment, the goal is to develop a general procedure to couple aromatic compounds to the sixth position in 2'-deoxyuridine and to determine its photochemical properties.

11	**Wood turtles (*Glyptemys insculpta*) and hibernation: understanding high and low fidelity** *Christina J. Ballatore with John Foley and Theodora Pinou.* *Advisor: Neeta Connally - Biology* The wood turtle (*Glyptemys insculpta*) is an endangered aquatic turtle endemic to Connecticut that is continuously threatened by human activity. During hibernation, wood turtles go into a turbid state and are helpless against those collecting organisms for the pet trade. Site fidelity is often exhibited in wood turtles during hibernation at certain latitudes, but has not been analyzed in any Connecticut populations. Using GIS, I investigated if site fidelity is exhibited in a population of wood turtles around the Great Hollow Nature Preserve.
12	**What motivates Puerto Rico to succeed in the World Baseball Classic?** *Steven Bates* *Advisor: Rotua Lumbantobing - Economics* During the 2017 iteration of the World Baseball Classic, it became clear that the team representing Puerto Rico was especially motivated to defeat the United States. The purpose of the project is to determine the key factors in Puerto Rico's motivation to win. My analysis indicates that these factors include their relationship with the U.S., their status as a Commonwealth, and debates over their debt and statehood. Baseball related issues will also be addressed, but is not the main focus of the project.

13	**Legalize it: a joint effort** *Elzbieta Bawol* *Advisor: Sarah Conrad - Philosophy & Humanistic Studies* The purpose of this study is to research the impact the legalization of recreational marijuana use would have on society from a business perspective. Legalizing marijuana for recreational use creates a new industry that has proven to be profitable in other states. Within this industry there is rhetoric that needs to be addressed in order to fully understand the industry's potential.
14	**Non-exercise activity thermogenesis and individual variation in predisposition to diet induced obesity in *Mus musculus*** *Ian Begg with Shawna Herter, Alexis Johnson* *Advisor: Patrice Boily - Biology* Human obesity rates and related diseases are rising globally. This study's purpose is to use *Mus musculus* as a model organism to investigate if an increase in non-exercise activity thermogenesis (NEAT) will reduce predisposition to diet induced obesity. We monitored 12 outbred mice who were fed a standard diet and switched to a high-fat diet. Measurements of activity and growth rate for individual mice were recorded. Our results found a large variation in the change in mass after switching diet. Our statistical analysis showed no significant correlation between NEAT and the predisposition to diet induced obesity in the mice.

15	**Exploring solid phase analytical derivation (SPAD) as a sample preparation method for quantitative analysis of pharmaceuticals by gas chromatography-mass spectrometry (GC-MS)** *Alexander Bieber* *Advisor: Yuan Mei-Ratliff - Chemistry* Previous research students have used a process of sequentially applying solid phase extraction (SPE), chemical derivatization, and GC/MS detection to analyze pharmaceutical residues in water samples. The sequential nature of this procedure can be laborious and time-consuming. A new approach called solid phase analytical derivatization (SPAD) combines the SPE separation and derivatization into one step. Preliminary studies have shown promising results in detecting six acid pharmaceuticals by this new method. A series of experimental conditions will be optimized. Once the method is quantitatively established, it may be used on a wider scope of sample types than previously used.
16	**Sticky seeds in Podostemaceae: To be (dispersed) or not to be?** *Michelle Bissett* *Advisor: Thomas Philbrick - Biological and Environmental Sciences* Seeds that become mucilaginous and sticky when wetted (myxospermy) occur throughout angiosperms. Myxospermy in Podostemaceae has been hypothesized to aid both seed dispersal and non-dispersal; neither have been empirically tested. In this experiment, we tested both hypotheses. We used a model river in the greenhouse to simulate the river-rapid habitat inhabited by Podstemaceae. We controlled for substratum, water volume, species, as well as sequence and timing of when seeds became wetted. Results support both hypotheses, depending on the combination of abiotic factors applied. Our results provide insight into factors that influence the distribution of these species in tropical rivers.

17	**Using GIS to understand risk and antibiotic resistance of *Neisseria gonorrhea* in the United States** *Waverly Rose Brim* *Advisor: Neeta Connally - Biology* *Neisseria gonorrhea* is one of the most prevalent STDs in the United States. In 2006, the CDC changed treatment guidelines due to first line treatment, fluoroquinolones antibiotics, proving ineffective. Guidelines were modified again, six years later, in 2012 when cephalosporins also declined in effectiveness. Geographic Information System technology was used to determine where in the United States presumed antibiotic resistance occurred. According to the CDC, poverty rates correspond with observed disparities in STD burden. Understanding antibiotic resistance in light of socioeconomic risks may provide insight on where we may work to slow infection rates and inadvertently slow down antibiotic resistance.
18	**Candlewood Lake and the potential risk of nonpoint source pollution: Results based on GIS analysis.** *Matthew Busse* *Advisor: Neeta Connally - Biology* Candlewood Lake is surrounded by many residencies which have individual septic systems. With homes built close to the water's edge, there is potential for phosphorous from the septic leaching field to enter the water due to system failures, system overflows, or soil saturation. Using GIS technology, mean saturation rate of soils in the Candlewood Lake watershed was determined and overlaid with the mean impervious surface coverage over these soils. The total exposed soil area, as well as the total means of the soils, have been utilized to determine the potential phosphorous absorption rates from exposed area in the watershed.

19	**Expression and purification of dipeptidylaminopeptidase** *Doneisha Coleman* *Advisor: J. Helena Prieto - Chemistry* The widespread resistance of malaria parasites to all affordable drugs has made the identification of new targets urgent. Dipeptidyl aminopeptidase, DPAP-1, is a protease that functions in hemoglobin degradation in the erythrocytic stages of *Plasmodium falciparum*. DPAP-1 has shown to be upregulated in proteomic studies when the parasite is under drug pressure and shows morphological signs of "crisis forms". DPAP-1 needs to be expressed and purified in order to test if it binds and is activated by cytochrome c to examine its role in putative apoptosis pathway in *Plasmodium falciparum*.
20	**Too high maintenance for me! The effect of dietary restrictions on impressions of romantic partners** *Mykelle Coleman with Karissa Milano; Andrew Geers, Ph.D, University of Toledo* *Advisor: Maya Aloni - Psychology* This study examined people's stereotypes of others who adhere to a gluten-free or vegan diet within the context of dating. We hypothesized that people with gluten-free and vegan dietary restrictions would be perceived as less desirable romantic partners compared to people with no dietary restrictions. One hundred and sixty two single students from Western Connecticut State University completed the study online. Participants answered four open-ended questions (among other questionnaires) pertaining to their impressions of others with dietary restrictions. Coding of responses revealed that both gluten-free and vegan hypothetical dates were viewed as high-maintenance, picky, cautious, healthy and judgmental.

21	**Does the susceptibility to stress affect the predisposition to develop diet-induced obesity?** *Kevin Cotto with Bryan Vargas* *Advisor: Patrice Boily - Biology* Obesity is a rising epidemic in modern society. There are many factors which can contribute to obesity among humans such as stress. We used mice as a model to investigate if the susceptibility to stress affects the predisposition to develop diet-induced obesity. The goal of this study is to show why individual mice vary in their response to mass gain. We tested the hypothesis that individuals exposed to more stress will have a decrease in their metabolism, contributing to mass gain. Results indicate that there is no relationship between the susceptibility to stress and the predisposition to developing diet-induced obesity.
22	**The effect of makeup use and body size on attractiveness** *Taylor Daniels* *Advisor: Rondall Khoo - Psychology* This experiment tests to see if makeup use and body size affects perception of attractiveness. A convenience sample of 50 Western Connecticut State University students were presented with a double-blind experiment containing 20 randomized photos of Caucasian females who were either skinny or large, with one picture having them wear makeup, and the other bare faced. Participants were asked to rate the photos on a scale of 1-4. The result of the analysis is predicted to support the hypothesis that skinny females with and without makeup, will be rated as more attractive than larger women with and without makeup.

23	**The effects of exercise on the predisposition for diet-induced obesity in CF-1 outbred strain mice** *Ana Dos Santos with Cassandra Almonte, Waverly Rose Brim* *Advisor: Patrice Boily - Biology* Obesity is a pandemic that affects many individuals worldwide. However, there is a variation in the predisposition to develop diet-induced obesity. In the present study, we tested if individuals who naturally exercise more have a lower predisposition for diet-induced obesity. Individual variation in predisposition for diet-induced obesity can be related to changes in exercise; as voluntary exercise increases, growth rate should decrease – resulting in a negative correlation. Our results showed a negative correlation between voluntary exercise and predisposition for diet-induced obesity before a switch in diet.
24	**My new financial advisor is a robot** *Tyler Dunlap* *Advisor: Sarah Conrad - Philosophy and Humanistic Studies* High frequency trading, and automated trading systems (ATSs) are becoming the new standard within Wall Street. It is estimated that more than 75% of the trades made on Wall Street are ordered by ATSs. Whereas human financial advisors used to be the standard for money management, they are now being replaced in droves. My research seeks to explain the role of the robot in the financial industry and the long term viability of an industry without people. Most importantly, is a “robo advisor” a sound replacement for a traditional human financial advisor?

25	**Exploring the polarity of cancer cell MUC1 aptamer** *William Fall* *Advisor: Nicholas Greco - Chemistry* DNA aptamers have been targeted as intracellular delivery vehicles due to their highly specialized binding to internalized cell surface markers that are upregulated on cancer cells. The Mucin 1 protein is a prime target for aptamer-facilitated drug delivery. DNA aptamers can precisely target transmembrane proteins and deliver a therapeutic agent. Fluorescent nucleoside analogs can determine the polarity of the Mucin 1 aptamer. Knowledge regarding polarity is important in understanding the interactions that take place between the target protein and the aptamer. Aptamers have the potential to develop a viable method of cancer treatment due to their high efficacy.
26	**The role of cues and stimulus alteration to detect change under the flicker paradigm** *Kaitlyn Fernandez* *Advisor: Rondall Khoo - Psychology* This study is being conducted on the phenomenon of change blindness. The purpose is to determine how an individual's ability to detect change is influenced under different conditions. One's ability to detect a change in a scene depends on their ability to spatially attend. Components that are important to change blindness are the type of change that occurs, and indications that are presented in regard to a change that is taking place. It is hypothesized that one's ability to detect change will be highest when the cue presented indicates the correct proximity in which the change will occur.

27	**Detection of blue-green algae (cyanobacteria) toxin genes in Candlewood Lake and Housatonic River water and sediments** *Victoria Fiorito* *Advisor: Edwin Wong - Biology* Cyanobacteria are normally harmless photosynthetic bacteria found in soil and water environments. Under certain conditions some species produce toxins that cause serious health problems, such as organ failure, in humans and animals. Toxic cyanobacterial blooms are a major environmental issue in the world today. Our lab is using PCR to detect specific toxin-producing genes in samples from Candlewood Lake and the Housatonic River as a way to predict future toxic cyanobacterial blooms. We assayed for genes that produce the cyanotoxins: Microcystin, Anatoxin, Cylindrospermopsin, and Saxitoxin. Our results show that all four toxin genes can be detected in samples.
28	**Mental health offenders in a supervised diversion program** *Nicole Grant* *Advisor: Divya Sharma - Justice and Law Administration* This research explains the Supervised Diversionary Program (SDP) in Danbury, Connecticut. This program aims at helping offenders and veterans, who have psychological impairments, an opportunity to avoid getting convicted and incarcerated. This research presents the preliminary findings based on secondary data. Additional information on treatment completion, employment status, gender differences, diagnosis, and housing will be collected using a structured interview schedule. The results from across the United States reveal a prevalent diagnosis of anxiety, bipolar disorder, and depression. A majority of defendants that apply for SDP are accepted on specific entrance criteria and ultimately complete the program successfully.

29	**Using GIS to predict risk for human-coyote interactions** *Shane Hoyt* *Advisor: Neeta Connally - Biology* The eastern coyote (Canis latrans) has thrived in a variety of environments. They have adapted extremely well to development. As coyotes have expanded their population range, more coyote sightings and human-coyote conflicts have occurred. GIS technology was used to identify whether human-coyote interactions were more likely to occur in a low, medium, or high density areas based on reports from citizens to the CT Department of Energy and Environmental Protection. GIS was also used to identify any correlation between the number of coyote and fox sightings.
30	**Gender stereotypes on toy preferences** *Katherine Joseph with Brunella Trotta* *Advisor: Robin Gustafson - Psychology* Contradicting results regarding the relationship between gender stereotyping and gendered perceptions remain. We hypothesized that parental tolerance or intolerance would have an effect on gender ratings of pictures of children's toys. Twenty undergraduate students were randomly assigned to read a passage in which parents expressed excitement or concern about their children's non-traditional play preferences. Participants' responses were measured through their ratings of children's toys as feminine, masculine, or neutral, after reading a short passage. No significant effect was found between parental tolerance or intolerance and gendered ratings of the toys.

31	**The "Magneto Problem": Assessing anti-semitism and artistic liberty in American superhero comics** *Devin Kalal* *Advisor: Sarah Conrad - Philosophy and Humanistic Studies* Marvel Comics recently unveiled its latest plot twist Magneto, a Holocaust survivor, teams up with Hydra, an organization well established as an overt reference to Nazi Germany. This sparked an outrage from Jewish and goyim (non-Jewish) fans alike with criticisms ranging from callous at best to overtly pushing an anti-Semitic agenda at worst. Yet other fans defend the decision, chiefly citing artistic liberty. While the "Magneto Problem" is hardly a large-scale injustice, it still begs the question: to what extent do artists have a moral responsibility to not harm oppressed groups, and where does that responsibility intersect with artistic liberty?
32	**Characterization of a haloacid dehalogenase superfamily enzyme from *Mycobacterium tuberculosis*** *Gursimran Kaur* *Advisor: Anne Roberts - Chemistry* Tuberculosis is a lung disease that is prevalent in 22 countries, is responsible for approximately 1.5 million deaths worldwide, and is caused by the bacterium *Mycobacterium tuberculosis*. Due to an increase in antibiotic resistant strains, understanding the function of each gene has become more important. This research focuses on a phosphatase (Rv3376) belonging to the haloacid dehalogenase (HAD) superfamily. Our goal is to optimize expression of and explore the substrate specificity for this enzyme, to understand how it may contribute to the survival of the bacterium in murine macrophages.

33	**Characterization of Jhp0715** *Charbel Khalil* *Advisor: Anne Roberts - Chemistry* Chronic gastritis, gastric ulcers, and gastric carcinoma can be caused by Helicobacter pylori. This bacterium uses an unusual biosynthetic pathway involving 6-amino-6-deoxyfutalosine to form menaquinone, an electron shuttle in the electron transport chain. Based on sequence homology, jhp0715 from H. pylori J99 has been identified as a member of the 6-amino-6-deoxyfutalosine pathway, but has not yet been characterized. Since this pathway is present in only certain bacteria, it could potentially be a target for the development of specific anti-H. pylori drugs. Jhp0715 will be expressed and purified for potential mechanistic studies.
34	**Progress towards the synthesis of a Baeyer-Villiger nanogel** *Madiha Khan* *Advisor: Forest Robertson - Chemistry* Recent reports have demonstrated that molecularly imprinted nanogels can be utilized as enzyme mimics to catalyze organic reactions. The most critical aspect of this project is the synthesis of a competent transition state analog (TSA). A synthetic method is currently under development to access a TSA for utilization in the synthesis of a Baeyer-Villiger enzyme mimic. Progress towards this goal is evidenced by the synthesis of 2-fluorocyclohexanone, a precursor to 2,2,6,6-tetrafluorocyclohexanone that will be used to form the TSA. 2,2,6,6-tetrafluorocyclohexanone will then be treated with a functional monomer to form an efficacious TSA which can be imprinted onto the nanogel.

35	**Method development for arsenic speciation and analysis** *Maximilian Krainer* *Advisor: Yuan Mei-Ratliff - Chemistry* Arsenic, an element known to be highly toxic in its inorganic forms, is found in various environments both naturally and as a result of pesticide use. This is of special concern because it can be incorporated into rice plants that may be used to make infant cereals. In order to establish an improved method for separating the inorganic arsenic from its less toxic organic forms in a given sample (known as speciation), a two-step solid phase extraction process is developed, which is followed by detection via inductively-coupled plasma optical emission spectroscopy (ICP-OES).
36	**Investigating the effects of social isolation on binge-eating** *Jenny Kry with Darcy Curillo* *Advisor: Joshua Cordeira - Biology* Affective disorders including depression and anxiety are highly prevalent, share a comorbidity with eating disorders, and are disproportionately diagnosed in women. We used a social isolation model for depression to investigate its impact on binge eating of high-fat, palatable food in female mice. Subjects were individually or pair-housed with continuous access to standard chow and allowed a two-hour window of high-fat food, three times per week to measure binge-eating behavior. We also used the tail suspension test to assess depressive-like behavior and investigate its relationship with binge-eating.

37	**English Premier League home field advantage** *Nick Kyriakidis* *Advisor: Rotua Lumbantobing - Economics* This projects seeks to examine whether teams competing in the English Premier League have an advantage while playing at home. I will gather data and use a statistical analysis along with economic reasoning, sports logic, and more, to test the myth of home field advantage.
38	**Too fat for Lululemon?** *Rachel Lange* *Advisor: Sarah Conrad - Philosophy and Humanistic Studies* In 2003, social networking introduced a way for users to connect and create bonds. By 2007, Facebook and Twitter won the web by creating innovative features such as the ubiquitous 'like' button allowing businesses to boost their visibility. Although social media has, overall, been looked at as a benefit to industry, social media might not always work in the favor of businesses. Chip Wilson, the CEO of Lululemon made insensitive comments about women's bodies inspiring a social media storm. This project seeks to understand the role social media plays in escalating such controversies.

39	**Fluorescent detection of dT dimers** *Li Shan Lin* *Advisor: Nicholas Greco - Chemistry* DNA is constantly exposed and vulnerable to intracellular and extracellular factors that lead to both temporary and permanent damages. DNA has repair mechanisms that allows it to undo the lesions caused by different agents. For example, UV radiation has been shown to induce the formation of photoproducts, such as formation of pyrimidine dimers which can lead to skin cancer. In this experiment, we are investigating what specific nucleotides and UV light may increase the chances of formation of photoproducts by exposing it to different wavelengths of the UV spectrum, and determining whether these lesions can be detected by the 5-(fur-2-yl)-2'-deoxyuridine probe.
40	**Historical spatial analysis of *Rosa multiflora* in Connecticut and New England using GIS** *Jake Lipinsky* *Advisor: Neeta Connally - Biology* The purpose of this research was to examine the spread of the invasive plant species *Rosa multiflora*, or Japanese rose in Connecticut and New England (NE). R. multiflora is widespread throughout the eastern US, and studies have shown that its distribution is linked with human development. Using data compiled from multiple NE herbaria, this research examined the spread of R. multiflora in the NE, over the past 100 years. Geographic Information Systems (GIS), were used to compare species distribution to different types of human development such as roads, farms, or density of human population.

41	**A turning point for the West** *Jake Lipinsky* *Advisor: Steven Ward - Social Sciences* The purpose of this research is to examine the fall of civilization, using theories derived from Oswald Spengler's The Decline of the West, in order to compare the rise and decline of past civilizations to that of our modern western civilization. This research will qualitatively compare the historic content of past and present civilizations, using a cyclical model of comparative analysis. This method will be used in order to compare and analyze patterns of civilization; the rise of great leaders, war and conflict, technological innovations, territory and land use, religion, language, mythology, art, and all forms of historical symbolism.
42	**Using GIS to investigate potential habitat for New England cottontail conservation** *Samantha Lipscomb* *Advisor: Neeta Connally - Biology* The New England cottontail is in danger of being extirpated from Connecticut. Habitat management efforts have been employed to secure New England cottontail populations on state, federal, and private lands. Geographic Information System (GIS) was used to determine potential sites for management per New England cottontail requirements for food, protection, and reproduction. A map was created showing contiguous habitat patches that could be utilized by native cottontails. This map may be used to identify habitat for continuing conservation efforts.

43	**The relationship among dispositional optimism, hardiness, and locus of control** *Amanda LoCascio* *Advisor: Rondall Khoo - Psychology* The extent to which people feel they have control over their life (locus of control) determines whether they expect future outcomes to be beneficial or negative (dispositional optimism) and how well they deal with stress (hardiness). People who believe they have personal control over the outcomes of events in their life (internal locus of control) will have a more optimistic outlook and be better able to deal with stress as a result. It is hypothesized that a person who has an internally-oriented locus of control will concurrently possess a high level of hardiness and dispositional optimism.
44	**Evaluation of sources of news** *Kyle Maggio* *Advisor: Rondall Khoo - Psychology* The purpose of this study is to examine whether the level of empathy is higher or lower based on credible or non-credible news sources. The current study will compare credible sources of news versus non-credible sources, such as blogs. It is hypothesized that how the news is presented affects empathy. Findings can determine how validity of news sources affects the empathy in viewers/readers.

45	**The relationship of forest edge to deer-vehicle collisions in Connecticut** *Matthew McCarthy* *Advisor: Neeta Connally - Biology* Although the deer population in Connecticut has stabilized in recent years, there are still over 1000 deer-vehicle collisions (DVC) yearly. DVCs may not be related to the total population of the deer; instead, DVCs may be related to the amount and proximity of forest edge near roads. Towns with more forest edge may have a higher frequency of DVCs. A GIS analysis was concluded to compare the frequency of DVCs to the amount of forest edge in Connecticut towns and along state roads. Our results show where the greatest risks of being in a DVC are in Connecticut.
46	**Using GIS to identify potential Connecticut towns at risk for human-black bear interactions.** *Shannon McFarland* *Advisor: Neeta Connally - Biology* As a result of farmland reforestation in Connecticut, the black bear population is rising and currently estimated at 600-700 bears by the CT DEEP. Residential areas dispersed between black bear habitat has caused human-black bear interactions (HBI) to increase. Geographic Information System (GIS) technology was used to predict where future HBI are expected in Connecticut as the population increases. HBI reported to the CT DEEP were mapped and correlated with suitable black bear habitat to determine what areas are most at risk of HBI. This map determines where CT DEEP should focus resources towards education and management of black bears.

47	**Psychology of design** *Christopher Michalek* *Advisor: Sarah Conrad - Philosophy and Humanistic Studies* Psychology and design go hand in hand. Almost everything we see and experience in today's world is designed by a team of individuals. Different designs and elements carry different meanings and cognitive responses that the designers may or may not be aware of. Some of these principles could be taken advantage of in order to enhance response to the designs. Would designers be more effective if they were aware and educated on the neural and psychological basis of perception and how it impacts our perception of a product, place, or image?
48	**Thirty minutes of voluntary running suppresses high-fat food intake and weight gain in mice** *Daniel Monahan* *Advisor: Joshua Cordeira - Biology* Mice prefer high-fat food (HFF) and develop diet induced obesity (DIO) when HFF is provided ad libitum, even when a nutritionally balanced standard chow (SC) is present. Brief, forced-exercise decreases preference for HFF in mice. As forced-exercise can be stressful, we tested whether brief voluntary-exercise influenced HFF preference and DIO. Mice fed HFF and SC ad libitum were given 30 minutes of RW or locked (control) RW, 5 days a week. Brief, voluntary-exercise reduced HFF preference, total caloric intake, and delayed DIO.

49	**Study of glutathione reductase/methylene blue interaction using HDX** *Robert Mownn* *Advisor: J. Helena Prieto - Chemistry* *Plasmodium falciparum* is a cause of human malaria and is one of two malaria parasites known to have developed drug resistance to current treatments. Due to the fact that there are currently no vaccinations against malaria, the control of this disease is reliant upon the use of antimalarial drugs. In this research study, pfGR was effectively cloned, expressed, and purified for analysis via HDX mass spectrometry (MS) to identify the drug-protein interface. MS data for the solvent exposed peptides after enzymatic digestion with pepsin will be determined, which will identify drug binding location on the protein.
50	**Potential for hope spots in Connecticut using GIS** *Nicole Neville* *Advisor: Neeta Connally - Biology* Hope Spots are marine protected areas that are established to conserve the ocean's health and the biodiversity of marine life. Currently, the state of Connecticut does not have a Hope Spot and with the establishment of a Hope Spot there will be conservation of marine life such as: migrating waterfowl, eelgrass, shellfish, and critical habitats. GIS was used to determine Hope Spot locations on the coastline of Connecticut and this information will provide the data needed to nominate a Hope Spot.

51	**Effect of appetite in diet induced obesity** *Stefanie Nunez with Matthew McCarthy, Carlos Cardenas* *Advisor: Patrice Boily - Biological & Environmental Sciences* This study investigates if variation in appetite is related to the predisposition of individual mice to diet induced obesity. We hypothesized that individuals with a higher appetite will be more likely to experience diet induced obesity. We measured voluntary food intakes on standard diet followed by a high fat diet. Contrary to our prediction, the mice with the lowest food intake under a standard diet had a tendency to gain more mass when switched to a high fat diet. This study increases our knowledge about potential risk factors of obesity in humans.
52	**Use of GIS to analyze strategic placement of automated external defibrillators (AEDs) in the city of Danbury** *Mario Oliveira* *Advisor: Neeta Connally - Biology* Heart disease is the leading cause of death in the US. Early CPR in cases of ventricular fibrillation accompanied with the proper use of automated external defibrilators (AEDs) can increase survival rates. GIS was used to investigate if strategically placed AEDs in the city of Danbury can have an effect in increasing survival rates from ventricular fibrillation. Data pertaining to cardiac events from 2014-2016 (n=265) were matched with AED data distribution (n=50). The results indicate that an increase in strategically placed AED's in certain first responder operating areas impact the understanding of survival rate increases from a pre-hospital cardiac event.

53	**Does body temperature affect the pre-disposition to diet induced obesity in outbred mice?** *Mario Oliveira with Adriana Kroha* *Advisor: Patrice Boily - Biology* Obesity presents serious health concerns that can lead to many illnesses. Using CF-1 outbred mice, body temperature changes were analyzed to look at individual variation in the pre-disposition to diet induced obesity. We hypothesized that mice with higher body temperatures have higher metabolic rates and therefore are less likely to gain mass. Body temperature was measured in mice fed a normal diet, followed by a high-fat diet. When switched to a high fat diet there was an increase in body temperature, but the response in growth rate was variable. Overall, no correlation was found between growth rate and body temperature.
54	**Parameter identification problem for a single-degree-of-freedom model of a vibrating system** *Karrie Phinney* *Advisor: Lydia Novozhilova - Math* If an impulse force is exerted on a structure, like a tall building, this causes the structure to vibrate. A prototypical single-degree-of-freedom mass-spring-damper model is typically used to obtain insight into this complex, multi-disciplinary problem. The main focus of this project is on some mathematical techniques and tools used for the identification of parameters of such a model. A detailed example will be presented.

55	**Pricing options and filtering financial data through wavelet transforms and Monte Carlo simulations** *Abdul H. Rahimyar with Hieu Nguyen* *Advisor: Xiaodi Wang - Mathematics* Due to the volatile nature of the financial world, it is very difficult to price or predict values to maximize profits. One reason for this difficulty is the noise that exists in financial data sets. Through this research we aim to filter out noise from historical stock data through the use of the Wavelet Transform. We will then follow up this transform with Monte Carlo simulations to obtain an option value which is more reflective of the stock's actual performance.
56	**Evaluating the technical suitability of open-source RDBMSs to enterprise applications** *Steven Rollo with Andrew Figueroa* *Advisor: Sean Murthy - Computer Science* Relational Database Management Systems (RDBMSs) are integral to many mission-critical applications in all kinds of enterprises, with enterprises expected to spend up to $50 Billion in 2017 on proprietary RDBMSs. We hypothesized that this expense can be significantly reduced by adopting open-source RDBMSs that are technically suitable. For this purpose, we first categorized data-management activities as design, development, and administrative kinds. We then compared how the open-source RDBMS PostgreSQL facilitates these activities in relation to proprietary offerings from Microsoft and Oracle and industry standards. The study includes comparative implementations of schemas and queries in each RDBMS for three non-trivial applications.

57	**Fifty shades of black and blue: sexual assault and domestic violence recognition as a function of gender and BDSM exposure** *Brittney Romagna* *Advisor: Rondall Khoo - Psychology* Research shows a significant increase in the representation of bondage-discipline-sadism-masochism (BDSM) in the popular media. Since the public has negative explicit attitudes toward sexual assault and domestic violence (SA/DV) and BDSM, the representation of BDSM in the media has the potential to normalize SA/DV. Findings can determine how the exposure to BDSM terms affect an individual's ability to identify SA/DV terms as unhealthy. More generally, this study will help to identify whether the presence of sadomasochistic terminology fogs the distinction between inherently healthy and unhealthy romantic relationships.
58	**The effects of sleep deprivation and exercise on cognition** *Heather Rosenblatt* *Advisor: Joshua Cordeira - Biology* Sleep deprivation after learning has been shown to impair object recognition memory in mice. We tested whether 12 hours of sleep deprivation before the novel object recognition task impacted object acquisition, a measure of attention and learning. Since exercise can improve object recognition memory by enhancing memory consolidation, we also investigated whether exercise could prevent cognitive impairments due to sleep loss. Our results show that object acquisition and memory performance were impaired by sleep deprivation and could not be improved by four weeks of wheel running. We conclude that while exercise may aid memory consolidation, it does not improve learning.

59	**Turning over a new leaf: Identification of a medieval manuscript leaf** *Lynn Schoenbeck* *Advisor: Katherine Allocco - History* I spent one semester, as a fellow under the Herbert Janick Fellowship in Research and Archival Management, researching a leaf of medieval sheet music to learn its provenance, better understand the written contents, as well as understand the physical document itself. I have collaborated with both the science and music department at WestConn as well as faculty from Vassar College to identify the type of skin the leaf is made of, how the music would sound when sung, as well as learning how this leaf fits into the greater context of Medieval History.
60	**The medieval popes' two bodies: internal conflict between church and state** *Stephany Stokes* *Advisor: Katherine Allocco - History* From its humble origins, the papacy had grown into a large political power by the eighth century. The pope lead both the Catholic church and the Papal States. This need to lead both the church and the state often caused conflicts within the papacy and between other kings and heads of state. By analyzing the effects of the Diploma Ottonianum, the Crusades, the Investiture Controversy and the conflicts of the fourteenth century, I will examine the challenges that the popes faced and the ways their policies affected the European balance of power in the medieval period.

61	**An examination of variance in the amino acid sequence of the Na-Cl cotransporter (NCC) in three divergent Threespine Stickleback (Gasterosteus aculeatus) populations** *Daniel Suquilanda with Karen Velez, Shannon McFarland* *Advisor: Michelle Monette - Biology* Threespine stickleback have invaded multiple freshwater environments resulting in physiological adaptation for freshwater survival. We examined whether freshwater adaptation involves alterations in the gene sequence of the Na-Cl cotransporter (NCC), a protein critical to freshwater ion regulation. We isolated DNA from gill tissue and compared the NCC sequence between marine and freshwater populations. We identified 3 amino acid differences in exon 10, and 1 in exon 16. These regions of NCC are involved in ion transport and trafficking, suggesting that freshwater adaptation may involve functional shifts in NCC. We will use a fluorescence-based, chloride-transport assay to test this hypothesis.
62	**Plumbing the depths: history of Candlewood Lake** *Kara Swenson* *Advisor: Leslie Lindenauer - History* As part of my Herbert Janick Fellowship, I designed an online exhibit that traces the creation of Candlewood Lake through newspapers, photographs, land deeds, and maps from the endeavor known as the Rocky River Power Project. The exhibit chronologically marks the initiatives taken by former Connecticut Light and Power Company's president J. Henry Roraback to build the first hydroelectric power plant and storage basin of its kind in the United States. An interactive 1920's map highlights the scale of the project and properties purchased, as well as provides a clearer understanding of its impact on local towns near Candlewood Lake.

63	**The prevalence of hepatitis C in CT: a GIS analysis** *Bryan Vargas* *Advisor: Neeta Connally - Biology* Hepatitis C (HVC) is a highly virulent virus which attacks the liver of its host. This virus is found all over the world infecting millions of people per year. This virus is found in the blood of individuals and can be acquired and passed through multiple methods. This study used Geographic Information Systems (GIS) analysis to discover if the prevalence of HVC is higher in regions more susceptible to economic hardships. The results presented in this analysis will be useful for identifying regions where HVC is more common in order to promote awareness and prevent infection.
64	**Quantitative proteomic analysis of malaria parasite treated with chloroquine** *Carolyn Vazquez with Zena Wright* *Advisor: Judith Prieto - Chemistry* Malaria is a mosquito-borne malady that is prevalent in under-developed countries. Quantitative proteomic studies hint towards two parasitic cellular degradation pathways, autophagy and the proteasome pathway. Either pathway would serve as a potential therapeutic treatment. Autophagy is a catabolic, “self-eating” process that recycles unnecessary cellular materials by autophagosomes. The proteasome pathway serves as another catabolic pathway in which it tags proteins with ubiquitin for degradation. The objective of this research is to investigate the intracellular degradation involvement of both pathways when *Plasmodium falciparum* is subjected to drug treatment, chloroquine.

65	**Cell phone tracking and the fourth amendment conflict** *Robert Weinberg* *Advisor: Divya Sharma - Justice and Law Administration* This paper analyzes the legal issues involved in the government accessing someone's Cell Site Location Information (CSLI) without a warrant. It analyzes the topic of CSLI in relation to the Third Party Doctrine, The Katz Test, and past case law surrounding technology. It also studies recent case law involving CSLI to determine the Federal and State Court's interpretation of the issue. The circuit split meets the requirements for a test case to go to the Supreme Court. However, the Supreme Court has yet to grant certiorari on a CSLI case leaving no final verdict of the issue.
66	**Radiative transfer in circumbinary disk GG Tau** *Tyler Wooldridge* *Advisor: Ana Rodriguez - Physics, Astronomy, & Meteorology* The processes by which photons are emitted and interact through emission, absorption, and scattering are governed by radiative transfer theory. To account for the complex interactions of these processes as well as the complex geometries of stellar systems, current research in radiative transfer utilizes statistical methods to simulate radiative transfer. This project considers a circumbinary disk wherein lies the T Tauri binary system GG Tau. More specifically, Monte Carlo statistical modeling methods via MATLAB are used to simulate radiative transfer in said disk by varying parameters including locations and luminosities of the system.

67	**Cytochrome c's role in apoptosis of *P. falciparum***

Muberra Yilmaz

Advisor: Judith Prieto - chemistry

P. falciparum has been suspected of carrying out apoptosis, which is a very common act for multicellular organisms. Regulating agent, cytochrome c, is found in the inner membrane of mitochondrion. Our purpose is to use cytochrome c's ability to initiate apoptosis in *P. falciparum*. After previously developed purification protocols have been used, cytochrome c's ability to activate apoptosis will be tested by using a fluorogenic substrate called z-VAD-AMC. z-VAD-AMC will be cleaved in a solution of malaria parasite cell lysate in increasing concentrations of cytochrome c. It is expected to claim involvement of cytochrome c in apoptosis in *P. falciparum*.

Poster Judges

Judge	*Department*
Katherine Allocco	Women's Studies
Maya Aloni	Psychology
Deborah Augenbraun	Counseling Center
Ryan Bachman	Speaker
Diane Bennett	Nursing
Keith Betts	VP Student Affairs
Esther Boriss	Administration
Susan Burger	Nursing
Kevin Burnard	Business
Eileen Campbell	Nursing
Mark Case	Admin. Services
Stavros Christofi	Math
Anthony Ciarleglio	Career Services
Denise Colaianni	Health Promotion & Exercise Sciences
Joshua Cordeira	Biology
Richard Corzo	Information Technology & Innovation
Thomas Crucitti	Alumni Relations
Patricia Cumella	Nursing
Stuart Dalton	Philosophy
Surekha Davies	History
Christina DiCarro	Library
Jolee Dinho-Guerreiro	Registrars
Jessica Eckstein	Communication
Rosa Fernandes	Psychology
Kristin Giamanco	Biology
Bailey Gulbrandsen	WestConnect
Nick Greco	Chemistry
Robin Gustafson	Psychology
Josephine Hamer	Dean of Macricostas School of Arts & Sciences
Xiaoqi Han	Marketing
Veronica Kenausis	Library
Stephanie Kuhn	Education and Ed. Psychology
Mike Lago	Athletics
Amanda Lasicki	Residence Hall Director
Leslie Lindenauer	History
Rotua Lumbantobing	Social Sciences
Jeanette Lupinacci	Nursing
Debra Manente	Career Services

(Judges, cont.)

Judge	*Department*
Kim Marino	Justice & Law Administration
Mary Nielson	Nursing
Jennifer O'Brien	Library
Jennifer Ort	Nursing
Cheryl Panosian-Haddad	Accessability Services
William Petkanas	Communication
Judith Prieto	Chemistry
Anne Roberts	Chemistry
Forest Robertson	Chemistry
Jeffrey Schlicht	Health Promotion & Exercise Sciences
Divya Sharma	Justice & Law Administration
Paul Simon	Director of CSC & Auxiliary Services
Monica Sousa	Nursing
Tricia Stewart	Education
Naomi T.L. Toftness	Library
Jack Tom	Art
Karen Walsh	Sec'y Computer Science
Xiodi Wang	Mathematics
Linda Warren	Nursing

Student Volunteers

Matthew Burke
Yosmira Genao
Mohammad Raza
Layra Valdes
Jessica Zajkowski

WRD Planning Committee

Dr. Michelle Monette, WRD Chair, Biological & Environmental Sciences
Dr. Bernard Gee, Psychology
Debbi Johnson, Biological & Environmental Sciences
Brian Stevens, Library and WCSU Archives

Ad-Hoc WRD Committee

Dr. Divya Sharma, Justice & Law Administration
Dr. Gabriel Lomas, Education
Dr. Darby Cardonsky, Art