UR 2009 C
Undergraduate Research Conference

Friday, November 13, 2009
McGregor Memorial Conference Center

7:45 a.m.	**Registration and Continental Breakfast** — Atrium
8:30 a.m.	**Welcome** — Room B/C Jerry S. Herron, Dean, Irvin D. Reid Honors College
	Nancy S. Barrett, Provost and Senior Vice President for Academic Affairs
9 a.m.	**Session I** — locations listed on session pages
10 a.m.	**Session II**
11 a.m.	**Session III**
noon	**Poster Sessions** — Atrium
1 p.m.	**Luncheon** — Room L/M
	Greetings Jerry Herron
	Introduction of guest speaker Kami Pothukuchi, Associate Professor, Department of Geography and Urban Planning
	Guest Speaker Dan Carmody, President Eastern Market Corporation in Detroit
	Awards Introduction: Kevin Rashid, OUR Coordinator Presentation: Academy of Scholars
	Farewell Jerry Herron

Office of Undergraduate Research
Kevin Rashid, Coordinator
Craig Phelps, Program Associate

Session I

9 – 10 a.m.

Panel 1: **Public Health: Behaviors and Education** Room F
Moderator: **Professor Patricia Jarosz**

Elizabeth Rummel, *The Body Attitudinal Environment: BMI, Body Image & Attitudes About Obesity*

Gunjan Malhotra, *Medication Recall and Understanding in Severe to Moderate Asthmatic Patients at Children's Hospital of Michigan*

Michelle El-Hosni, *A descriptive study of environmental and clinical patterns relating to Type II diabetes mellitus in the Cayo District of Belize, Central America*

Edyta Debowska, *Socioeconomic Status and Social Support as it Correlates to the Quality of Life in American American Patients with Lupus in Metro-Detroit*

Panel 2: **Computer Science and Physics** Room G
Moderator: **Professor Daniel Frohardt**

Victoria Pardo, *Fractions, Decimals, and 111111111*

Elias Taxakis, *Experimental Validation of 3D Soundscaping*

Elizabeth Halash and Kun Wang, *Offloading CPU Intensive Applications to the Cloud*

Panel 3: **Boundaries, Greenbelts and Identity** Room H
Moderator: **Professor Eric Montgomery**

William Ahee and Julia Sosin, *Heidelberg Community Garden Project*

Eric Tuomey, *A Critical Analysis of the Limits and Constraints of Howard's Greenbelt*

Jackson Bartlett, *Beyond the Gayborhood: Race, Representation, and Queer Space in the Motor City*

Pridvi Kandagatla, *Long Term Changes in Self-Perception after a Summer Service Learning Program in China*

Panel 4: **Histories of Reform and Revolution** Room I
Moderator: **Professor Denver Brunsman**

Shayan Momin, *Rural Remedies: Culture Construction, Education Reform, and the Peasantry in the People's Republic of China*

John Tattershall, *"The Model Republic" Divided: Civil War in America and the English Press*

Alexandria Reid, *The Other Americans: Revolutionary Causes Outside of the Thirteen Colonies*

Panel 5: **Biology** Room J
Moderator: **Professor Christopher Kreipke**

Adnan Hussain and Anita Patel, *Aminochrome Uses a Transport Pump to Enter the Mitochondria*

Alexander Marinica, *Behavioral Outcome Following ETrA Antagonist Administration After Traumatic Brain Injury*

Adrianne Stefanski, *Ketamine induces enduring effects on Amphetamine-Induced Behavior and Neurochemistry in the Rat*

Denise Bronner, *Characterization of CG4875, a Novel Drosophilia G-protein coupled receptor*

Panel 6: **Alternative Research Opportunities** Room E

Ethriam Brammer, *Associate Director, Center for Chicano-Boricua Studies, "The CBS Life-long Learning Community: Nurturing Careers in Latino Studies Research."*

Eric Stief, *Director of Venture Development, Technology Commercialization Office, "E2 Challenge and other programs for entreneurs."*

Joseph Baynesan, *Program Director, McNair Scholars Program, "Financial and academic opportunities that McNair Program provides you in order to pursue a Ph.D."*

Session II

10 – 11 a.m.

Panel 1: **Cell Biology and Genetics** Room F
Moderator: **Professor Mark VanBerkum**

Rhead Uddin, *The Effects of Frazzled Signaling on the Cytoskeleton*

Le Wang, *Synonymous and nonsynonymous SNPs in the drosophila genome*

Sean Bhalla, *Beta-1 integrin mediates pressure-stimulated phagocytosis*

Amy Eapen, *Epigenetic Control of Cellular Immortalization in Li-Fraumeni Cells*

Panel 2: **Urban Gardens and Greenspace** Room B/C
Moderator: **Professor Kami Pothukuchi**

Kami Pothukuchi, *SEED Wayne: A brief Introduction to Sustainable Food Systems at Wayne State Univeristy*

William Ahee, *Students Grow Food on Campus: Lessons from Two WSU Gardens*

Jordan Sinclair, *Harvesting Rainwater: Teaching Students and Others to Build Rainbarrels*

Roland Bogdani, *Building a Prototype for an Integrated Garden System for WSU's Parking Structure #5*

Katherine Bryant, *Developing an Outreach Plan for SEED Wayne: Lessons from Immersion at the WSU Farmers Market*

Panel 3: **Theatrical Interventions in Education, Public Relations and Research** Room H
Moderator: **Professor Carla Vecchiola**

Benjamin Williams, *Stanislavski Technique as Applied Theatre for Youth Empowerment*

Shannon Komondy, *Creation of a Theatrical Education Program*

Felicia Rose and Bethany Stolzenfeld, *From Paper to the Body: Restaging a Solo Work From the Past Through the use of Labanotation*

Fattum Mutahr, *Reality Check: A Community Outreach Program and Research Initiative*

Panel 4: **Cultural Identities and Conflict** Room J
Moderator: **Professor Elena Past**

Mike Peraino, *Italy on a tightrope, the tides of economic change*

Michelle Goyke, *The Politics of Language and Birthplace in Canada's Governor General Literary Awards: A Diachronic and Bilingual Study*

Fiona Dixon, *Katakana is Tafu*

Panel 5: **Material Science** Room J

Moderator: **Professor Andrew Feig**

Rebecca Lindsey, *Internal Rotation of Substituent Groups in DNAN and MNA using HF, MP2 and B3LYP theories*

Jane Philip, *Thermodynamic Characterization of Kissing Complexes*

Sujata Putatunda, *Synthesis, magnetic, and electrical characterization of FeTiO3 thin films*

Session III

11 a.m. – noon

Panel 1: **3D Imaging Techniques** Room F
Moderator: **Professor David Rueda**

Stephanie Neal, *Magnetic Resonance Imaging MRI 3-D Imaging*

Mansoor Siddiqui and Jeremy Moore, *Chemical Trigger Synthesis for Activating Selective MRI Contrast Agents*

Syed Ali and Elvin Aleman, *Expression of Streptavidin for UV-related single-molecule purposes*

Alex Cernat, *New Tools for Crude Oil Characterization*

Panel 2: **Applied Mathematics** Room G
Moderator: **Professor Robert Bruner**

Michael Catanzaro, *The Topology of Spaces of Triads*

YoungKey Chung, Fariha Hussian, and Jon Hordos, *Federal Reserve Challenge 2009: Assessing the United States Economy*

Daniel Choi, *Stochastic Optimal Control Modeling of International Debt Crises*

Shaun Hazen, *Activity Based Costing as an Economics Based Approach to Government Accounting, Case Study: The Michigan Gaming Control Board*

Panel 3: **Glamour and Beauty: Building Identities and Communities** Room H
Moderator: **Professor Ginger Bihn-Coss**

Kendra Boyd, *Selling Salons: An Analysis of Newspaper Advertisements for African-American Salons in Detroit throughout the 1930's*

Isaac Pool, *Giving Face: Glamour and Queer Subjectivity*

Ashley Clemons, *Standards of Beauty in African American Literature*

Panel 4: **The Politics of Ethnicity and Tolerance** Room I
Moderator: **James Durham**

Srdan Sadikovic, *Does Interaction Bring Tolerance? Testing the Contact Hypothesis in Bosnia and Herzegovina*

Eric Fleury,*The Break-Up of Yugoslavia: An International Legal Analysis*

Alyssa Bell, *The Acuerdo de Lima: A Case Study of an Election Monitoring Network in Latin America*

Latreille Myers, *Barack Obama: Race and the Presidential Race*

Panel 5: **Micro and Environmental Biology** Room J
Moderator: **Professor Robert Akins**

Rachel Marshall, *Skin Microbiome*

Kinnari Patel, *Characterization of the Human Oral Micriobiome Using Alternative qPCR Tools*

Lisa Kyle, *Determination of the Pesticide Imidacloprid in the Pollen of Injected Green Ash Trees*

Panel 6: **Apply Yourself: Getting into Graduate School** Room B/C

Dr. Ambika Mathur, *Writing a Strong Personal Statement for Your Application*

Michael Wood, *Director, Office of Graduate Admissions, The Admissions Process*

Charlotte Winston, *WSU Graduate School, The Graduate School Experience*

Poster Session

noon

Andrew Aneese and Rami Omari

Steven Al-Hakim

Zahraa Allohaibi

Yusef Anderson

Danica Aquino

Amanda Armitage

Neil Bakshi

Michael Bell

Sean Bhalla

Terainer Brown

Amanda Carnagie

Sana Chaudhry and Blake Walker

Naomi Fei

Katrina Fenton

Matthew Garin

LeAnn Germer

Ajay Gopalakrishna

Vikas Gumber, Correy Black and Rajesh Regmi

Allison Hanson

Paul Hubbarth

Ella-Deneen Jones

Pridvi Kandagatla

Kyle Kemp

Abhinav Krishnan

Nadiya Korostelova

Amy Krull

Tim Kwiecien

Matthew Lambert

Roland Lawrence

Robert Lin

Antoinette London-Johnson

Raymond Matar

Kevin Miles

Joy Montgomery

Jessica Oakes

Jeri Pajor

Shaun Pezeshki

Andrew Reid

Marjorie Sauer

Ali Sayed-Ahmad

Janelle Sherman

Ali Sobh

David Tobin

Mohmed Twfik

Karen Van Tiem

A luncheon and awards ceremony in Room L/M will follow the poster session.

Presenters

William Ahee and Julia Sosin
Faculty mentor: **Kami Pothukuchi**

Heidelberg Community Garden Project

Our presentation will be an oral presentation, guided by a powerpoint presentation. It will first focus on the need for community gardens and the roles that university students can play in creating greater food security. It will then address the process of beginning such gardens. It will outline the difficulties and successes that we have experienced throughout the project, and ways to address typical problems in starting a garden. It will close with the results of our research, which focus more broadly on beginning community gardens and the importance of creating realistic timelines, developing community partnerships, and steps to working on food justice issues in low-income areas while carrying out research.

Andrew Aneese and Rami Omari
Faculty mentors: **Ashis Mukhopadhyay**

Diffusion of Nanoparticles in Polymer Melts and Solutions

Soft matter is the foundation of life; it is the building blocks of everything from tires to human cells. The research we are doing with polymers is advancing our understanding of transport properties of complex, heterogeneous systems, such as the ones in gels or a cell's cytoplasm. By studying the diffusion of nanoparticles in a polymer solution, we are aiming to advance our knowledge in these areas that will help to understand the motion of proteins and other biomolecules within crowded cellular environment.

Syed Ali and Elvin Aleman
Faculty mentor: **David Rueda**

Expression of Streptavidin for UV-Related Single-Molecule Purposes

For the purpose of detecting biological macromolecules, such as carbohydrates, proteins and nucleic acids, in the ultraviolet (UV) electromagnetic range, a tetrameric protein called Streptavidin is used to anchor said macromolecule to the slide or solid support. However in this UV range, streptavidin often absorbs light, which results in troublesome background signals. We intend to express Streptavidin with 4-fluorotryptophan analogs so that it can be used for single molecule experiments in the UV range.

Danica Maureen Aquino
Faculty mentor: **Dr. David Ledgerwood**

The Influence of Motivational Systems, Behavioral Inhibition System and Behavioral Activation System, on Smoking Cessation through Contingency Management Treatment

Smoking-related illnesses are some of the leading causes of preventable death in the United States. A variety of treatments is offered to counter the smoking habit and may be tailored to individual preference. Contingency management

treatment is based on the behavior theory principle that substance use is a learned behavior. In this research, an alternative operant reinforcement of prizes is given for reduced carbon monoxide samples from a patient, which indicates a decrease or stop in smoking habits. Aquino will address whether motivational personality traits for seeking a reward and responding to risks have an influence on successful smoking cessation treatment through contingency management.

Amanda Armitage
Faculty mentor: **Judith Moldenhauer**

Detroit Statistics: Balancing the Equation Data Design for Decisions (DD4D)

Enhancing Social, Economical and Environmental Progress examined ways to bring personal meaning and relevance to statistics. The understanding and processing of statistical content is a rapidly growing necessity in today's society. Every day, technology increases the amount of information being recorded, but it also increases the pace at which that information is presented and processed by an audience. We researched individual relationships with statistical data, whether or not we understand it, whether it is relevant to us, how it enters our lives, and what it looks like. The project called for us to design a way to make statistics/data more relevant.

Neil Bakshi
Faculty mentor: **Marc Basson**

The Effects of Strain on Intestinal Epithelial Cells

We assessed the role strain plays on intestinal epithelial cell motility and wound closure on various mediums. The Src kinase protein plays a vital role in the strain stimulated cell proliferation pathway. We further found that Src inhibition blocks cell proliferation on a collagen matrix due to pressure/strain. We assessed how kinase inhibitor PP2 could inhibit Src and prevent cell migration and cell spreading. We also assessed the ability of various siRNA's to inhibit Src and block the strain stimulated cell proliferation.

Jackson Bartlett
Faculty Mentor: **Xavier Livermon, Ph.D.**

Beyond the Gayborhood: Race, Representation, and Queer Space in the Motor City

As white activists in the state's largest queer organizations claim the Detroit suburb of Ferndale as their own, the racially exclusive processes bolstering the town's upward transformation are going unchallenged. Ferndale, however, is represented by white activists as a welcome space that is naturally diverse due to its relatively recent status as a gay and lesbian hub. This paper explores this geographic misrepresentation of Ferndale and of local black queer communities. The geography of black queer experiences impacts political priorities, organizational strategies, and identity, complicating affluent white attempts to "diversify" their own particular movement.

Alyssa Bell
Faculty Mentor: **Sharon Lean**

The Acuerdo de Lima: A Case Study of an Election Monitoring Network in Latin America

By completing a case study on a Latin American network of election monitoring organizations, called the Acuerdo de Lima, this study suggests that both (1) leverage and legitimacy, and (2) knowledge and experience are valid reasons that nongovernmental election monitoring organizations would join networks. These results were maintained by using available web resources; which included (but were not limited to) recent and archived news articles, election monitoring reports, organizational program sheets, and financial aid documents; data was collected on what activities each organization within the Acuerdo de Lima Network were involved in, and what those activities suggested.

Michael Bell
Faculty Mentor: **Dr. Tamara Hendrickson**

Investigating the Link Between GluRS2 and GlnRS in H. Pylori

Investigating the link between two enzymes in the microorganism H. pylori will help to elucidate the evolution of an important mechanism in all life. These enzymes are part of the machinery that is responsible for translating the DNA code in all organisms. Standard biochemical methods have been employed to begin understanding this evolutionary link.

Sean Bhalla
Yardena Samuels

The Benefits of High Throughput Sequencing for Cancer Therapeutics: MITF Pathway in Melanoma

Melanoma is a type of skin cancer that originates from a malignancy of pigment producing cells known as melanocytes. In order to understand the genetic mutations our lab has been sequencing gene families from DNA of melanoma patients. We use high-throughput sequencing, to identify pathways and genes are affected by mutations. The MITF is a transcriptional regulator, involved in neural crest cell development. To determine whether MITF is somatically mutated, we analyzed sequences and discovered that it is frequently mutated in cutaneous malignant melanoma as well as primary melanoma. Our results demonstrate that the MITF pathway is a major target for mutational activation in melanoma and may be a useful diagnostic and therapeutic target.

Sean Bhalla
Faculty Mentor: **Marc Basson**

Beta-1 Integrin Mediates Pressure-Stimulated Phagocytosis

Changes in extracellular pressure as may occur in conditions of infection or inflammation can influence macrophage phagocytosis, but the pressure-stimulated receptor by which phagocytes interact with their targets has not

been identified. These results demonstrate that non-professional phagocytes such as fibroblasts display the same phenomenon and suggest that increases in extracellular pressure stimulate phagocytosis by modulating β1-integrins threonine 789 phosphorylation.

Kendra Boyd
Faculty Mentor: **Dr. Danielle McGuire**

Selling Salons: An Analysis of Newspaper Advertisements for African-American Salons in Detroit throughout the 1930's

During the Great Depression African-American businesses suffered great economic stress and many did not survive. However, African-American owned beauty salons in Detroit's commercial districts thrived and remained solvent throughout the 1930's. Because the market was crowded and very competitive, salon owners attempted to differentiate their businesses from competitors through advertising. Boyd will present an analysis of salon advertisements placed in the Detroit Tribune, a weekly African-American newspaper, and discuss the techniques used to promote and differentiate these salons. These techniques aid in understanding the success of African-American beauty salons during a period of poor economic climate.

Denise Bronner
Faculty Mentor: **Mark F.A. VanBerkum**

Characterization of CG4875, a Novel Drosophilia G-protein Coupled Receptor.

G-protein coupled receptors (GPCRs) are seven-pass transmembbrane proteins historically known to be activated by hormones and sensory stimuli to exert cellular change. Recently, these receptors have also been shown to regulate important developmental processes, including axon guidance and neuronal outgrowth. One such gene affecting neuronal morphology was CG4875, a putative G-protein coupled receptor; howver its expression pattern is unknown. Accordingly, Bronner will present on the expression pattern of CG4875 in developing embroyos.

Terainer Brown
Faculty Mentor: **Dr. Janet Hankin**

The Relationship between Fine Arts Programs and Student Success in High Schools

Do fine arts help high school students succeed? Many successful public, chartered, and private schools invest in fine arts programs as an essential component of the curriculum. Moreover, the educational literature is abundant with discussions of both the benefits of fine arts programs and the characteristics of student success. However, the relationship between fine arts programs and student success, although widely accepted, is less clear. The research will employ in-depth qualitative interviews of high school fine arts educators and school administrators throughout the Detroit metropolitan area. This pilot study provides data about the perceived contribution of the fine arts curriculum to high school student success.

Michael Catanzaro
Faculty Mentor: **Robert Bruner**

The Topology of Spaces of Triads

We may think of triads, or three notes played simultaneously, in different musical scales as triangles, with each note in the triad corresponding to a vertex. Using this type of visualization, we may attach triads (or triangles) to one another along common edges if they share two notes. After attaching all the different triads in our musical scale together, we may ask what types of geometrical spaces are formed. In this presentation, we classify all such spaces of triads.

Alex Cernat
Faculty Mentor: **Dr.Sarah Trimpin**

New Tools for Crude Oil Characterization

An increasing source of liquid petroleum can be found in deposits of oil that is too thick to remove from wells in a relatively inexpensive way and developing means to extract this oil is crucial. In order to remove it, an effective analysis method has to be developed. The main obstacle is the increasing insolubility because there are no analytical approaches available to actually characterize such samples. This project aims to develop and use the potentially powerful tool of total solvent-free analysis by MS to provide proof-of-concept data.

Sana Chaudhry and Blake Walker
Faculty Mentor: **Lori Pile**

Genetics Screen to Identify Components of the SIN3 Interaction Network

Proper gene expression is necessary for normal cell function. Gene expression is affected by packaging of genomic material by histones. Tightly packaged genes are not expressed. SIN3 corepressor affects packaging and represses transcription. To identify factors involved in regulation with SIN3, we determined whether phenotypes associated with mutation of SIN3 could be affected by a mutation in a second factor. SIN3 mutants were first crossed to flies containing overlapping chromosomal deletions or mutations in known regulators of the cell cycle. The results of our experiments will allow us to identify genes that are affected by or have an effect on SIN3 activity; this will help us to identify pathways in which SIN3 is involved.

Daniel Choi
Faculty Mentor: **Dr. George Yin**

Stochastic Optimal Control Modeling of International Debt Crises

With the advent of the recent financial crisis, many economists and mathematicians have been analyzing and investigating the primary reasons for the recession across the world. Many questions regarding the vulnerability of the United States' economy to external shocks as well as the ability of other nations to sustain their growth have become overly complex. By examining the Asian

crisis of 1997, one can use that data to create financial models that are useful in providing warning signals. The models will use an analytical framework that explicitly takes uncertainty into account and can be applied to available data. The techniques of stochastic optimal control and some dynamic programming are integral parts of the theoretical framework.

YoungKey Chung, Fariha Hussian, and Jon Hordos
Faculty Mentor: **Robert J. Rossana**

Federal Reserve Challenge 2009: Assessing the United States Economy

This research focuses on analyzing the economic indicators of the United States economy during the "Great Recession." These findings were used during the Federal Reserve Competition in Chicago on November 9, 2009. Some participating schools included Northwestern University, the University of Michigan, Michigan State University, and Wayne State University.

Ashley Clemons
Faculty Mentor: **Dr. Margaret Jordan**

Standards of Beauty in African American Literature

The focus of the research is standards of beauty as it is reflected in African American literature. There is an examination of this theme in the fictional works of authors Toni Morrison and Charles Johnson in order to understand the relationship between fictional plots and reality. The issue of beauty is explored through media and advertisements, the male perspective and society's exclusion. The primary texts in this research are Morrison's "The Bluest Eye" and "Song of Solomon" and Johnson's "Middle Passage" and "Education of Mingo." Other scholarly resources were utilized to provide an understanding of the texts and the time period.

Tanuka Datta
Faculty Mentor: **Matthew P. Galloway**

Ketamine Induces Enduring Effects on Amphetamine-Induced Behavior and Neurochemistry in the Rat

Major depression is a serious and recurrent disorder that affects nearly 20% of the world. The use of drugs in the treatment of this health problem bears with it many challenges, however. Classic antidepressants often take a significant amount of time for onset of therapeutic action. Hence, the need to discover new antidepressant interventions is a critical area of research. The drug Ketamine, best known as a general anesthetic for pediatric and veterinary use, has recently received interest based on clinical observations of its rapid, enduring antidepressant effects. This project looked to gain further insight into the question of how this drug works to produce these effects and what doses are optimal for therapeutics.

Edyta Debowska
Faculty Mentor: **Dr. J. Patricia Dhar**

Socioeconomic Status and Social Support as it Correlates to the Quality of Life in African-American Patients with Lupus in Metro-Detroit.

Systemic lupus erythematosus (SLE) is an autoimmune disorder, in which the immune system attacks healthy tissues. This results in multisystem disease manifestations. Symptoms of SLE include arthritis, kidney, heart, and lung problems. Living with lupus can be very difficult; however there are ways to maintain a positive quality of life. Compared to Caucasian women, African American women are three times more likely to get lupus. Given the severity of the symptoms, its incurability, and its disproportionate infection in African Americans, it is important to examine the quality of life in these patients and whether there is any association with socioeconomic status and social support.

Fiona Dixon
Faculty Mentor: **Isamu Fukuchi**

Katakana is Tafu

The Japanese language is filled with loan words. Many of which are borrowed from English. When the words are assimilated into Japanese, they undergo changes in order to fit the Japanese phonetic system. We attempt to find patterns within these changes in order to create a system of loan word conversion.

Amy Eapen
Faculty Mentor: **Dr. Michael A. Tainsky**

Epigenetic Control of Cellular Immortalization in Li-Fraumeni Cells

Li- Fraumeni is an autosomal dominant genetic disorder. The Tainsky laboratory hypothesized that the Li-Fraumeni types of cancers were due to methylation of CpG islands and therefore could be reversed epigenetically. To test this, four fibroblast cell lines were used and three drugs were tested. The drugs, Zebularine, 5-aza-2'deoxycytidine, and SAHA. Through RT-PCR and the beta-gal assay, the drugs showed increased activity of tumor suppressor genes. Those looked at were IRF7, CREG, and STAT1. Analysis of the activity of these genes reveals the effectiveness of the drugs.

Michelle El-Hosni
Faculty Mentor: **Dr. Kai-Lin Catherine Jen**

A Descriptive Study of Environmental and Clinical Patterns Relating to Type II Diabetes Mellitus in the Cayo District of Belize, Central America

The leading causes of death in Belize are diabetes, heart disease, and hypertension. We theorized that this was due in part to the mixed ethnic background of the Belizean population. El-Hosni traveled to Belize over the course of two years to investigate patterns in Type II diabetes mellitus (T2DM) through data collected in traveling clinics. It is conclused that without adequate nutrition education starting at an early age, this population which already at high risk for T2DM will experience even higher health risks in the very near future.

Naomi Fei
Faculty Mentor: **Dr. ML Greenberg**

Investigating Barth Syndrome: The Role of Cardiolipin in Mitochondrial Morphology

Barth Syndrome (BTHS) is a life-threatening disorder in young males caused by a genetic mutation. In BTHS patients with a similar genetic mutation, a wide variety of symptoms is observed. This variation may be due to other cellular modifiers that are affecting the original mutation. Fei will present on a genetic approach to identify and isolate these modifiers. In doing so, the understanding and treatment of BTHS is furthered.

Katrina Fenton
Faculty Mentor: **Matthew Galloway**

Proton Magnetic Resonance Spectroscopy (1h-Mrs) Assessment of the Neurochemical Profile in Rat Brain After Traumatic Brain Injury (TBI)

Traumatic brain injury (TBI) is a leading cause of death and disability in the United States as well as the signature injury of soldiers returning from battle in Iraq and Afghanistan. Primary injury is the result of immediate mechanical insult at the time of event, while secondary injury, such as cognitive, motor, and memory dysfunction, evolves over days to months. Neurochemical changes, amenable to magnetic resonance spectroscopy (MRS) assessment, remain to be established. My research uses MRS to measure the neurochemical changes that occur in rat brains at 2 hours, 1 day, and 7 days following traumatic brain injury.

Eric Fleury
Faculty Mentor: **Brad Roth**

The Break-Up of Yugoslavia: An International Legal Analysis

Research outlines the traditional doctrines of international law and compares them with the manner in which they were applied to the 'dissolution' of the former Yugoslavia.

Matthew Garin
Faculty Mentor: **Judith Moldenhauer**

Detroit Statistics: Balancing the Equation

The main intention of this project is to represent humans in the equation of statistics. Pointing out the ways in which humans impact statistical information, and how that information could effectively participate in our daily lives. Detroit's influence on global statistics, as well as the influence of other parts of the world on Detroit will be a main focus, and stepping stone to encourage a greater understanding of statistics and their influence.

LeAnn Germer
Faculty Mentor: **Edmond H. P. van Hees**

Lithogeochemical Alteration of Ultramafic Wallrocks Surrounding Gold Mineralization in Tully Township, Ontario, Canada

The quest for new mineral resources is taking explorationists to Tully Township, a 100 km2 area, in northeastern Ontario that is covered by >30m of glacial sediment. Here exploration drilling has located six gold-bearing zones. Future exploration efforts could be improved if chemical alteration of rocks or isotope composition of veins correlates with gold mineralization. Chemical analyses of rock and vein samples collected from drill core preserved in a core library will try to establish if such chemical links exist. The association of CO2-rich fluid and rock alteration with gold deposits in the nearby Porcupine Mining Camp bodes well for this possibility. Interpretation of chemical and stable isotope data collected will be presented.

Ajay Gopalakrishna
Faculty Mentor: **Dr. Prahlad Parajuli**

Exploration of Molecular Interactions Among Scutellaria Flavonoids for Anti-Glioma Activity

Malignant gliomas, cancers that start in the brain or spine, are one of the most lethal tumors. The effectiveness of herbal therapy as a treatment is currently being investigated. This study examines a certain group of chemical compounds called flavonoids in a Chinese herb called Scutellaria. Preliminary research has indicated that these compounds may have anti-tumor properties. The purpose of this study was to investigate which specific flavonoid displayed the most anti-tumor activity as well as the possible interactions between various flavonoids.

Michelle Goyke
Faculty Mentor: **Sandra Hobbs**

The Politics of Language and Birthplace in Canada's Governor General Literary Awards: A Diachronic and Bilingual Study

Canada has an official policy of bilingualism, and many laws and policies to protect minority language rights. However, there are also many unofficial practices that contribute to the politics of language and identity in Canada. An examination of the Governor General's Literary Awards will reveal how the English-language and French-language divisions grant awards based on linguistic and national identities. Goyke will present a comparison of the winners in several categories of the English-language and French-language awards, revealing the unlegislated territory and language identity politics operating in Canada.

Vikas Gumber, Correy Black and Rajesh Regmi
Faculty Mentor: **Gavin Lawes**
Investigating the Effective Hydrodynamic Size of Dextran Coated Iron Oxide Nanoparticles

Iron oxide nanoparticles, having a size roughly one billionth as large as a red blood cell, have shown great promise for a number of biomedical applications.

However, before these can be used in medicine, we must first understand their behavior in solution. One of the important parameters to know is the precise nanoparticle size. This is often measured using two techniques: light scattering using a laser and magnetic measurements. However, after coating these nanoparticles to avoid having them stick together, these methods for measuring the size may not be applicable. The goal of this project is to determine how to properly determine the nanoparticle sizes in solution.

Allison Hanson
Faculty Mentor: Patrick Woster, Ph.D..

Polyamine Analogues as Small Molecule Inhibitors of Lysine-Specific Demethylase 1

Chromatin remodeling mediated by post-translational modification of histones is a major regulator of eukaryotic gene expression and aberrant, epigenetic, gene silencing contributes to tumorigenesis. The enzyme lysine-specific demethylase 1 (LSD1) has emerged as an important cellular mechanism for epigenetic control of gene expression. We have identified important new lead compounds that can reverse aberrant gene silencing, and may be useful in the treatment of human cancer. These new analogues were generated using synthetic routes that are easily adaptable to the synthesis of a large library of homologues.

Elizabeth Halash and Kun Wang
Faculty Mentor: **Cheng-Zhong Xu**

Offloading CPU Intensive Applications to the Cloud

Cell phones are no longer simple communication devices, as most mobile devices incorporate various functions, such as music players or games. A shortcoming of mobile devices is their limited computing capabilities due to portability and cost issues. Utilizing cloud computing to bridge the gap between high-end servers and mobile devices could solve this computing problem. However, cloud computing is still in its early stages, and its potential needs to be analyzed and tested. One key issue is whether it is truly beneficial in terms of speed to offload applications to a powerful server in the cloud. If cloud computing is developed further, mobile applications could become more complex while the actual devices become smaller.

Shaun Hazen
Faculty Mentor: **Maef Woods**

Activity Based Costing as an Economics Based Approach to Government Accounting, Case Study: The Michigan Gaming Control Board

Cost accounting is the collection, processing, and presentation of financial information to obtain the cost of specified output. Particularly, activity based costing is a method where appropriate cost drivers and related activity cost pools are used to assign costs to products and services. By applying activity based costing to a government service a comparison can be drawn between an

agency's current cost allocation, and the activity based cost approach. Moreover, such information is useful to decision makers when examining cost, pricing services, or making other managerial decisions.

Paul Hubbarth
Faculty Mentor: **Lisa J. Rapport, Ph.D.**

Cortisol Stress Reactivity and Spiritual Well-Being Among People with Traumatic Brain Injury

Chronic stress causes long-term health problems. Traumatic brain injury (TBI) survivors are especially susceptible to stress due to challenges associated with impairment of daily activities. Research shows that religion and spirituality are positively related to health outcomes and may benefit stress control. No study to date has examined whether this relationship holds true for TBI survivors, many of whom have limited awareness of their cognitive and physical deficits. Hubbarth describes the beneficial relationship between religious/spiritual well-being and physiologic stress reactivity (expressed in salivary cortisol) among 57 TBI survivors, and how this relationship differs among patients who are aware versus unaware of their deficits.

Adnan Hussain and Anita Patel
Faculty Mentor: **David Njus**

Aminochrome Uses a Transport Pump to Enter the Mitochondria

Aminochrome is thought to have a role in Parkinson's disease. The research focuses on how aminochrome enters the mitochondria. The beginning of the presentation will focus on Parkinson's disease and other scientific discoveries in relation to the aminochrome theory. Radioisotopes were used for the experiments, so the theory behind the experiments will be discussed.

The next portion of the presentation will discuss the experiments completed and the data obtained. It will focus on how aminochrome enters the mitochondria and the characteristics of the pump. Finally, we will discuss how this research affects Parkinson's research as a whole and the impact of this research on Parkinson's research as a whole.

Ella-Salone Jones
Faculty Mentor: **Fred Vultee**

Youth Explosion: Y E 313 Magazine Junior Journalist Project

The Youth Explosion project encourages youth and young adults to become writers and reporters. Instruction includes basic skills in interviewing, writing, editing, photography, and layout design of a magazine. 15 youths, age 8-18, hands on experience in the field of journalism.

Pridvi Kandagatla
Faculty Mentor: **John Brender**

Long Term Changes in Self-Perception After a Summer Service Learning Program in China

How can a three-week Summer Service Learning Program to China change a college student's self-perception? The Wayne State University Confucius Institute and the WSU Honors College have partnered with the Wang Foundation, Tsinghua University and Huazhong University of Science and Technology to conduct the SSLP in China since 2006. SSLP is a poverty alleviation program where American college students teach English to rural Chinese students with the goal of motivating these underrepresented individuals to take the Chinese college entrance exam. This presentation addresses the program's impact on previous WSU participants, focusing on changes in self-perception within the context of family, school, community, nation and the world.

Pridvi Kandagatla
aculty Mentor: **Dr. Sreenivasa R. Chinni**

Assessing Effectiveness of CXCR4 Antagonist, CTCE9908, on Prostate Cancer

Prostate Cancer (PC) starts in the Prostate Gland and spreads to other parts of the body. This spread is called metastasis. Studies show the role of molecules called chemokines and their receptors in the metastasis of Prostate Cancer. One chemokines and receptor pair that is instrumental is the CXCR$/CXCL12 pair. CXCR4 is a receptor expressed on PC cells and is activated by its ligand. Certain compounds have been created to bind and antagonize the CXCR4 function, which would function as metastasis inhibitors in PC model systems. This study tests the efficacy of a compound, CTCE-9908, which has shown to inhibit CXCR4 function in cancer cells.

Kyle Kemp
Faculty Mentor: **Judith Moldenhauer**

Detroit Statistics: Balancing the Equation

An overview of ideas presented in the DD4D conference in Paris. A retrospective of personal thought and global public opinion of the idea of socioeconomic progress and decision making for the general public.

Shannon Komondy
Faculty Mentor: **Shelley Seguin**

Creation of a Theatrical Education Program

The presentation will share the process of creating a theatrical education program about issues of sexual aggression and fostering a non bystander mentality within a community as diverse as Wayne State University.

Nadiya Korostelova
Faculty Mentor: **Jeremy Kodanko**

Optimization of Coupling Reaction

Coupling reactions usually take time and chemicals in large quantities. One of the reactions involved in making an unnatural amino acid requires a phase transfer catalyst in large amounts along with temperatures which are hard to control. Nadiya will present a new set of conditions for the same product and with the same yield and purity.

Amy Krull
Faculty Mentor: **Dr. Tamara Bray**
Morphological and Functional Analysis of Manos and Metates at the Late Imperial Inca Site of Caranqui

Information about the subsistence habits of ancient cultures can be learned through the study of implements used in food preparation. Manos and metates, stone grinding tools often used in process grain, are found in relatively large amounts at the archaeological site of Inca-Caranqui in the Andean highlands of northern Ecuador. Use wear and stylistic analysis of these lithic tools reveals patterns of use wear registered on these distinct artifacts from the site. This study seeks to recognize use wear trends in the manos and metates from the site of Inca-Caranqui through comparing the use wear patterns to the various styles of these artifacts identified from the site.

Tim Kwiecien
Faculty Mentor: **Jeremy Kodanko**

Identification of an Iron(III)-Glutathione Species

Iron Complexes of the ligand N4Py (N,N-bis(2-pyridylmethyl)- bis(2-pyridyl) methylamine) have been shown to prefer the FeII oxidation state. An FeIII intermediate in the reaction of [FeIV (O)(N4Py)]2+ with glutathione has been observed. Identification, isolation, and characterization of the species are underway, as well as mechanisms of formation. UV- vis, mass spectroscopy, electron paramagnetic resonance, and kinetic modeling have been used to aid the studies of this unique and interesting FeIII glutathione intermediate

Lisa Kyle
Faculty Mentor: **Dan Kashian**

Determination of the Pesticide Imidacloprid in the Pollen of Injected Green Ash Trees

Imidacloprid is an insecticide used worldwide to manage agricultural crops. It has been developed as an injectable treatment to control the emerald ash borer, a non-native insect responsible for killing millions of ash trees each year in the U.S. Studies on a variety of plants show permeation of the compound into all plant tissues after pesticide application. No studies have been found that determine if imidacloprid permeates into the pollen of injected ash trees. Wind dispersion of contaminated pollen could potentially expose large geographic areas, specifically

its native invertebrates, to its toxicity. This project presents a method using mass spectrometry to determine if imidacloprid is detected in the pollen of injected ash trees.

Matthew Lambert
Faculty Mentor: **Evan Larson**

Breaking the Mold

Common student text used in learning casting techniques although thorough in giving a general overview of many techniques offer little illustration or detailed description in explaining casting processes. Lambert has begun to construct a user friendly illustrated companion manual/journal to conventional studio guides. Comparisons between common beginning student texts and Lamberts illustrated manual will be shown in comparison. As a second portion of research, Lambert has been investigating the capabilities of inclusion casting which is a technique that allows for an object to be included into a cast without the use of other techniques. Lambert will also present unexpected challenges in this process.

Roland Lawrence
Faculty Mentor: **Ollie Johnson**

Re-Compassionating African-American Males By Dispelling the Myths of Homosexuality and Eliminating Homophobia

Researcher will present the problem, the ramifications of the problem, and the causes, and possible solutions to eradicate homophobia in the Black African community.

Robert Lin
Faculty Mentor: **Yang Zhao**

Sex vs Asex: Is Maintenance of Adaptational Advantages Beneficial in Stable Environment?

In research work presented in last year's research conference, we presented computer simulation results that indicated that sexual reproduction leads to the effect of genetic homogeneity rather than genetic diversification. In this conference, we present preliminary results that indicate that this genetic homogeneity effect is beneficial in stable environments with strong selective pressures.

Rebecca Lindsey
Faculty Mentor: **Dr. Jeffrey Potoff**

Internal Rotation of Substituent Groups in DNAN and MNA using HF, MP2 and B3LYP Theories

DNAN and MNA are two candidate materials for use by the Army as explosives. When considering a new explosive material, it is imperative to understand all associated molecular and physical properties.

Due to the nature of explosives, investigation on novel energetic materials is well suited for application in computer simulation. When performing computer simulations, one must understand how properties are being calculated, and especially so in this application, where unforeseen error propagation can come at the cost of human life. In this presentation I investigate the accuracy of 3 theoretical methods of calculating molecular properties on two candidate materials for use by the army as explosives.

Antoinette London-Johnson
Faculty Mentor: **Rita J. Casey, Ph.D.**

Ethnicity: A Key Factor In Depression Among College Women?

Unexpected levels of depression symptoms were found in a control group of college age women. A study was conducted to explore the levels of depression among college women in comparison to that of the general population of women.

Raymond Matar
Faculty Mentor: **Carla Vecchiola**

The Big Read

The Big Read answers a big need. Reading at Risk: A Survey of Literary Reading in America, a 2004 report by the National Endowment for the Arts, found that not only is literary reading in America declining rapidly among all groups, but that the rate of decline has accelerated, especially among the young. The initiative plans included community events based on book discussions, readings, Arabic literature discussion, contests and even backgammon lessons all of which resulted in increasing the numbers of literary readers.

Gunjan Malhotra
Faculty Mentor: **Dr. Elizabeth Secord**

Medication Recall and Understanding in Severe to Moderate Asthmatic Patients at Children's Hospital of Michigan.

Patient non-compliance and the lack of understanding what a medication does is a problem in all fields of medicine. The purpose of my study is to assess how our patient education in the asthma clinic affects how much our asthma patients know after being educated about their medications on a long term basis, and if our program of education is effective. Specifically, by the use of a survey, we sought to test our patients to see if they understand how and when to administer the proper medication and what to do in an asthmatic emergency.

Alexander Marinica
Faculty Mentor: **Christian Kreipke**

Behavioral Outcome Following ETrA Antagonist Administration After Traumatic Brain Injury

Traumatic Brain Injury (TBI) occurs when the brain is subject to rapid movement within the skull, usually as a result of a collision with external objects or forces. Most recently, there has been a rise in TBI worldwide as a direct result of the Iraq and Afghanistan wars, with those affected losing basic memory functioning. However, by administering an ETra antagonist which keeps blood flowing to the brain after a TBI, we are able to minimize the effects of the injury — with patients gaining normal memory functioning following at a rate comparable with non-TBI test populations.

Rachel Marshall
Faculty Mentor: **Robert Akins**

Skin Microbiome

New tools, such as the polymerase chain reaction (PCR) and high throughput sequencing, allow scientists to explore the microbial world at the molecular level. My goal is to identify less dominant bacterial or fungal species present in mixed populations on skin. I compared various ways of sampling, and used a method called subuniversal qPCR to count cells present in a variety of groups. I found that fungal cells were not detected on healthy skin, but that bacteria from >5 phyla were distributed nonrandomly. This suggests that my strategy detects more species than more expensive methods. Future studies include sequencing, and testing more samples from individuals with healthy and abnormal skin.

Kevin Miles
Faculty Mentor: **Dr. Howard W.T. Matthew**

Mechanical and Cell Adhesion Properties of Chitosan

Tissue engineering offers the possibility to create replacement valve tissue that can regenerate and grow with a child, eliminating the need for multiple surgeries. The techniques involved include creating an artificial heart valve from a biopolymer called Chitosan, which is seeded with stem cells and implanted in a child. Chitosan must be modified to promote cell adhesion, and to attain mechanical properties analogous to the natural heart valve. The goal of this work is to determine whether grafting fatty acids to Chitosan can improve its mechanical strength and cell adhesion properties. Several forms of fatty acid-grafted Chitosan were synthesized and evaluated with regard to strength and ability to support growth of heart valve cells.

Shayan Momin
Faculty Mentor: **Alexander Day**

Rural Remedies: Culture Construction, Education Reform, and the Peasantry in the People's Republic of China

This work examines the bond between intellectual views of the peasant and developments in China's rural education system. Media outlets diffused ideas of backward peasants after Mao's death. Maoist beliefs of the peasant, which saw it as a heroic force, contrasted with these images of the reform period. As a result, ideas about the peasant and its role in society changed. These changes enabled reform in the countryside. The link between intellectuals and the state allows the development of attitudes towards the construction of the new peasant to be shown in analyses of rural problems in academic articles. This project reveals how new ideas about China's peasantry affected reform in the state's approaches to education in the 1980s.

Joy Montgomery
Faculty Mentor: **Joseph M. Fitzgerald Ph.D.**

Early Childhood Memories as a Construct of Race and Gender

Autobiographical memory recall is directly influenced by race and gender. African American women have the latest recall of early childhood memories. A third study is being conducted to verify the significant difference in memory recall in African American women.

Fattum Mutahr
Faculty Mentor: **Christian Vannier**

Reality Check: A Community Outreach Program and Research Initiative

Reality Check is a multifaceted volunteer based community outreach program. The aim of this research was to benefit the youth in urban centers/ethnic enclaves by working towards three primary goals. The first was to promote the success of youth (Grades 1-12 and college students) through creative projects and discussion based lessons. The second was to create a positive urban identity for urban centers a universal template for a community involvement. The final and more formal research goal was to create a university template for a community outreach program that could be implemented in any given community. Over the course of three months, this project was successfully coordinated and implemented to meet these three goals in an Arab-American ethnic enclave in Southeastern Michigan.

Latreille Myers
Faculty Mentor: **Sharon Lean**

Barack Obama: Race and the Presidential Race

Senator Barack Obama is seeking the Office of the President of the United States of American and is the first non-white person to have made it this far in the process. This research is important because all matters of racial equality

are important. Understanding and improving racial relations and political participation are key to the functioning of society. Many people believe that if Obama wins the election, there would be great changes in racial relations and politics in the US. This paper uses Group Threat Theory suggests that Obama will not be successful in certain locations in the U.S., particularly where the dominate and minority groups do not have regular, quality interaction. Group Contact Theory suggests that he will be more successful in areas where the two groups do have more regular and better quality interactions.

Stephanie Neal
Faculty Mentor: **Matthew Allen**

Magnetic Resonance Imaging MRI 3-D Imaging

Magnetic resonance imaging (MRI) allows us to see 3-D images of the body without invasive procedures. Contrast agents are used with MRI for better visualization of areas of interest. When water interacts with a contrast agent, the image produced has signal and background noise. Therefore, the overall image can have a low signal to noise ration. My research focuses on the synthesis of spherical polymers called dendrimers. These macromolecules will be used to surround an MRI contrast agent. My goal is to exclude water from interacting with contrast agents to prevent the unwanted background noise using dendrimers. Bt controlling the water's interaction, the signal to noise ratio should be increased, making MRI an even more powerful imaging modality.

Jessica Oakes
Faculty Mentor: **Robert Harr**

The Search for the B->pp Decay

Quantumchromodynamics(QCD) is the theory describing the interaction of quarks. In QCD, combinations of 3 quarks (baryons) or 3 antiquarks (antibaryons) or a quark and an antiquark(mesons) are stable combinations. The formation of baryons from 3 objects is poorly understood. The rare decay B->pp is a laboratory for studying the transformation from a meson to a baryon and antibaryon. Many theoretical predictions for this decay have been invalidated by the lack of observational evidence. The present experimental bound lies around 1 in 10 million decays. This analysis aims to improve the sensitivity of this bound by an order of magnitude, with the hope of finally observing this decay.

Jeri Pajor
Faculty Mentor: **Thomas Killion**

Preliminary Research on Prospective Sites of Archaeological Interest in Two African-American Neighborhoods Known as Black Bottom and Paradise Valley.

The preliminary data gathering necessary to find sites of archaeological interest with the target area of two neighborhoods in Detroit known as Black Bottom and Paradise Valley. Items collected, i.e. maps, books, survey reports, newspaper clippings, etc. to help in locating sites of interest. Creation of a comprehensive list of target addresses along with names and address of property owners for

contact for site excavation, as well as, the development of a list of community partners to aid in the future excavation project.

Victoria Pardo
Faculty Mentor: **Daniel Frohardt**

Fractions, Decimals, and 111111111

Public key encryption is the chosen security method for a countless number of the most important financial transactions around the world. Top secret documents are exchanged using this method. Much of internet commerce is made safe because of public key encryption. Public key encryption, as important as it is to the world today, is strongly based off the notion of breaking down large composite numbers into their prime factors.

Kinnari Patel
Faculty Mentor: **Dr. Robert Akins**

Characterization of the Human Oral Micriobiome Using Alternative qPCR Tools

The human body is populated by more bacterial cells than human cells, and most of these are present in the oral-gastrointestinal tract. Characterization of the vast diversity of oral bacteria has preoccupied microbiologists for decades. The fastidious nature of many species, and the observation that in nature, only about 1% of species are culturable in existing media, have prompted researchers to use molecular approaches. My project is an attempt to apply new PCR tools where primers are designed to detect and quantify oral bacterial species. Knowledge of these populations is important, not only for oral hygiene, but for general health, since some species pose greater risk for cardiovascular disease and even preterm birth.

Mike Peraino
Faculty Mentor: **Elena Past**

Italy on a Tightrope, the Tides of Economic Change

When most Americans think of Italy, the first ideas that come to mind are history, art, food or wine. Italy is often times seen as a grand museum, and although this is what Italy is internationally known for, Italians have a different perspective on their world, which isn't always so positive. As we all know, these trying times offer little support, and jobs are hard to come by. For Italians the search for a rewarding career is an even more difficult one.

Shaun Pezeshki and Christopher Kassab
Faculty Mentor: **Dr. Daniel Grosu**

WayneAd: An Intelligent Bidding Agent for Internet Advertising Auctions.

We describe the design of WayneAd, an intelligent software agent that represented Wayne State University in the 2009 International Trading Agent Competition - Ad Auction (TAC-AA). The agent was designed to provide a strategy for bidding in a simulated internet ad auction, and the sale of goods that corresponds to the ads.

Jane Philip
Faculty Mentor: **Andrew Feig**

Thermodynamic Characterization of Kissing Complexes

RNA kissing complexes are important RNA tertiary structure interactions that can regulate how certain genes are expressed in bacteria and viruses. The thermodynamics of the kissing complexes tell us the relative stability of the kissing interaction and report on the internal structures with the individual RNA hairpins that contact one another. In this study, Jane will present how one can use Isothermal Calorimetry (ITC) to explore the thermodynamic stability of different RNA kissing complexes.

Isaac Pool
Faculty Mentor: **Dora Apel**

Giving Face: Glamour and Queer Subjectivity

Glamour's sensibility is tied to a decadence often read as reckless, disposable, and meant to glorify the temporal. While this critique stands as a powerful reading of the mechanisms that uphold class difference, it simultaneously allows for an ahistorical dismissal of the radical potential that glamour has provided for the queer subject. Glamour's proponents constantly expose the process of their constructions through their use of ever-changing signifiers, be it the spaces they construct for their alternative "lifestyles" or the clothing that they conduct themselves in. Projecting from a position of the Other marked by gay identity, glamour allows for an immediacy of self-reflexive performances insistent of personal psychic reality.

Sujata Putatunda
Faculty Mentor: **Dr. Gavin Lawes**

Synthesis, Magnetic, and Electrical Characterization of FeTiO3 Thin Films

Semiconducting materials provide the foundation for many of the devices used in modern electronics, ranging from transistors to LEDs. There is widespread interest in developing new types of devices that are sensitive to both the charge and spin on electrons. These devices will require materials that are simultaneously semiconducting and magnetic. This project is focused on synthesizing and characterizing thin films on one such material, FexTi1-xO3. In addition to studying how the magnetic and electronic properties depend on the film composition, we have also explored the effects of vacuum annealing the samples. We find that vacuum annealing improves both the magnetic properties and conductivities of the samples, leading to better materials.

Alexandria Reid
Faculty Mentor: **Denver Brunsman**

The Other Americans: Revolutionary Causes Outside of the Thirteen Colonies

The American Revolution was a conflict that involved not only the people of the thirteen American colonies, but also Americans living across the areas west

of the Appalachian Mountains. These "other Americans" were largely isolated from the grievances that drove eastern colonists to rebellion, namely taxation and perceived infringement of their liberty. This presentation, then, seeks to explain the actions of these western Americans by taking into account the unique motivations born from living on the frontier.

Andrew Reid
Faculty Mentor: **Dr. Vaibhav Diwadkar**

Working Memory-Related Fronto-Parietal Reductions in Activation in Schizophrenia-Offspring Unrelated Grey Matter Deficits: Convergent Analyses of fMRI and Structural MRI Data

Adolescent offspring of schizophrenia patients (SCZ-Off) evince many deficits in the structure and function of the prefrontal cortex, an area of the brain which develops dynamically throughout adolescence and underlies the basic cognitive processes of memory, attention and executive function. Whereas studies have used functional magnetic resonance imaging (fMRI), structural MRI (sMRI) and behavioral tasks to investigate these deficits, few studies have employed a combination of these techniques to identify cross-modal deficits in this population. By combining sMRI and fMRI we had discovered that there are no significant structural differences which contribute to the functional deficits in the prefrontal cortex of SCZ-Off.

Felicia Rose and Bethany Stolzenfeld
Faculty Mentor: **Eva Powers**

From Paper to the Body: Restaging a Solo Work from the Past Through the use of Labanotation

Labanotation is a symbol based language used to analyze, describe, and document movement for over 70 years. There are hundreds of dances currently notated as a preservation of the dance art. With the use of Labanotation one is able to restage a dance solely from paper instead of visual aid. Rose and Stolzenfeld participated in the re-staging of "Journey" a dance piece from 1958, mainly with the use of Labanotation.

Elizabeth Rummel
Faculty Mentor: **Patricia Jarosz**

The Body Attitudinal Environment: BMI, Body Image & Attitudes About Obesity

With the prevalence of obesity increasing in the United States, we sought to discover whether we are becoming more tolerant of this health problem, or whether we are better recognizing the risks associated with excess body weight. Ms. Rummel will present on the psychosocial aspect of obesity as it relates to health behavior change.

Srdan Sadikovic
Faculty Mentor: **Kevin Deegan-Krause**

Does Interaction Bring Tolerance? Testing the Contact Hypothesis in Bosnia and Herzegovina

Bosnia and Herzegovina is a country where vast separation of peoples is an everyday reality. Due to the ethnic cleansing campaigns in the mid 1990's, the ethnic make-up of regions within Bosnia and Herzegovina has become more homogenous. My investigation takes me to the two largest cities in the divided entities to better understand the views of progressive youth on both sides of the divide.

Marjorie Sauer
Faculty Mentor: **Judith Moldenhauer**

Detroit Statistics: Balancing the Equation

Presentation will be based on our research of Detroit for the creation of a poster which we presented at the DD4D Conference in Paris. We would like to include in our presentation the poster which we created for the student portion of this conference called DD4me. Our research is based on statistics about Detroit in several categories including Culture, Crime, Education, Infrastructure, Economics, and Rebuilding. Our poster displays this information relating it to the cogs of a machine which imply that the nature of statistics is that they are influenced by people and one also affects the other.

Ali Sayed-Ahmad
Faculty Mentor: **Dr. Karen Myhr**

Imaging Endogenous mRNA in Living Neurons with Molecular Beacons

Brain cells have highly branched projections called dendrites, which create connections called synapses with other brain cells. Dendrites change to make synapses stronger or weaker, a process called plasticity. Messenger ribonucleic acid (mRNA), a molecule that codes for protein synthesis in dendrites, contributes to plasticity by creating proteins that modify specific synapses. We are developing a method to examine dendritic mRNA in living tissue. This method utilizes molecular beacons, which are genetic strands that fluoresce when they attach to their target mRNA. The beacons will be conjugated with proteins that help them go through the cell's membrane. Our results suggest that using these proteins to deliver the beacons is effective.

Janelle Sherman
Faculty Mentor: **Dr. Lawrence D. Lemke**

Influence of Decimeter-scale Variability on DNAPL Infiltration and Migration in a Glacial Sand Aquifer

This project is centered on an area located in Oscoda, Michigan called the Bachman Road site. At this site, a dry cleaning business has leaked the chemicals used for cleaning into the ground, causing contamination of the aquifer beneath it. An aquifer is a permeable geologic unit that can act as a reservoir

for fluids in the earth. The purpose of this study was to characterize the fine scale stratigraphy of the saturated portion of the aquifer, and to determine if any variability would affect the migration of the contaminant. A hypothetical tetrachloroethene (PCE) spill was modeled in the aquifer with UTCHEM-9.82, a multiphase flow simulator. Results indicate that fine scale variability can affect infiltration and spreading of PCE.

Mansoor Siddiqui and Jeremy Moore
Faculty Mentor: **Dr. Matthew Allen**

Chemical Trigger Synthesis for Activating Selective MRI Contrast Agents

Magnetic resonance imaging (MRI) is a non-invasive method of looking at opaque biological systems. Chemical contrast agents improve MRI by interacting with water molecules to produce images that can aid the diagnosis of disease. A limitation of contrast agents is the amplification of background signal that they cause. To prevent these background enhancements from occurring, the Allen Lab is synthesizing a water-repelling molecule to surround contrast agents. My research focuses on synthesizing a chemical trigger that will remove this surrounding molecule from the contrast agent, activating it for MRI.

Ali Sobh
Faculty Mentor: **Dr. Choong-Min Kang**

Identification of Additional in vivo Substrates of PknA/PknB in M. Tuberculosis

Of all the processes organisms undergo, one of, if not the most important, is that of cell division. Such is the case with Mycobacterium tuberculosis (TB), a disease causing agent capable to survive in an animal host for unusually long periods of time. The project's aim is to determine the role of the signal transduction system, specifically of PknA and PknB, two of the most significant protein kinases in regulation of Mycobacterial cell division and physiology. To answer this problem, the focus will be on identifying the substrates of PknA/PknB in TB. Identifying and characterizing unique cell division determinants will contribute to the biological understanding of these microbes with the potential for long-term humanitarian benefits.

John Tattershall
Faculty Mentor: **Marc Kruman**

"The Model Republic" Divided: Civil War in America and the English Press

As the United States were on the brink of civil war in late 1860, the English press promptly began framing its discussion of Trans-Atlantic events in terms of their significance for domestic politics, especially franchise reform. English papers and journals focused at length on the causes and implications of the American Civil War, often involving a number of considerations: aboltionism, free trade, power politics, and a perceived economic dependency on cotton. But central to the debate carried on in editorials, letters, and public meetings throughout England was one question: What did the dissolution of the "Model Republic" to the West mean for democracy in the "Mother Country?"

Elias Taxakis
Faculty Mentor: **Dr. Sean Wu**

Experimental Validation of 3D Soundscaping

The proposed research project will test the accuracy and effectiveness of a new invention that can track and trace multiple incoherent sound sources moving in 3D space in real time. A 3D soundscaping technique is used in order to achieve this function. There are many potential applications of this invention including identifying the locations of snipers and explosions in a battlefield, locating gun shots in a crowd or shopping center, monitoring the motion of a motor vehicle, helicopter, or boat, diagnosing brake squeals, squeaks, rattles, buzzes, and many other industrial noise problems facing the manufacturing industry. This invention improves upon the limitations of current methods for performing the same function.

David Tobin
Faculty Mentor:**Dr. David Njus**

Oxidative Stress Caused By Aminochrome and DM3B in Relation to Parkinson's Disease

Parkinson's disease is a degenerative disorder of the nervous system that affects fine motor skills. Currently the pathology behind the disease is not completely understood; however the Njus lab is attempting to outline mechanisms by which this disease progresses. The neurodegeneration of the dopamine-secreting neurons is due to the formation of reactive oxygen species (e.g. superoxide radicals). The oxidative stress is due to a compound that that forms upon dopamine's oxidation; aminochrome. This compound, however, is not electrochemically stable and polymerizes quickly. Therefore, to study its effects on a cellular culture, we have produced a novel compound that mimics aminochrome's redox-cycling activity while remaining stable.

Eric Tuomey
Faculty Mentor: **Jeff Horner**

A Critical Analysis of the Limits and Constraints of Howard's Greenbelt

The research seeks to find classic commonalities between Ebenezer Howard's idealized city and Detroit, and to suggest ways to link the Garden City ideal with this propitious moment in Detroit's development history. The research also indentifies and expands on five critical issues that will pose threats to the redevelopment of Detroit's vacant property: municipal liability, public access, environmental remediation, management, and zoning. Careful consideration of the lesson found herein may mitigate or avoid future roadblocks to redevelopment of Detroit's vacant land into greenspace.

Mohmed Twfik
Faculty Mentor: **Jeffrey Ram**

Calcuim and Glutathione Effects on PGE2 Synthesis

It's known that the CaSR in thick ascending limb affects the paracellular Ca reabsorption. This mechanism is the result of a series of organized steps that

involve inhibition of the luminal potassium ion channel in the thick ascending limb. The activation of CaSR generates a series of biochemical reactions that inhibit the potassium channels. This inhibition causes changes in the transluminal voltage, which eventually decreases the reabsorption of luminal calcium into circulation. We are studying the effects of glutathione levels on the Calcium concentration through several techniques mainly through EIA and Pge2 synthesis.

Rhead Uddin
Faculty Mentor: Mark VanBerkum

The Effects of Frazzled Signaling on the Cytoskeleton

During embryonic development, neurons extend their axons into the extracellular environment and synapse with target cells. The leading edge of the axon expresses receptors that respond to cues guiding movement. Frazzled is a receptor whose activation is presumed to lead to the rearrangement of the cytoskeleton. Our lab has shown that Frazzled interacts with cytoskeletal regulators such as Abelson tyrosine kinase during axon guidance. Thus, we hypothesize that Frazzled and Abelson tyrosine kinase interaction is required in the modulation of the cytoskeletal dynamics. The goal of this project was to understand the molecular mechanism of Frazzled and non-receptor Abelson tyrosine kinase interaction in the regulation of actin cytoskeleton.

Karen Van Tiem
Faculty Mentor: **Lawrence D. Lemke**

Linking Texture and Gamma Ray Log Response in Glacial Sediments of Southeast Michigan

Water supply wells located in Ann Arbor Michigan have been contaminated by a chemical called 1,4 dioxane. The subsurface of Ann Arbor is composed of glacial sediments that contain radioactive elements which can be identified by using a Gamma Ray Log. A Gamma Ray detector is lowered into the monitoring well to record the radioactivity of the surrounding sediments. The objective of this research project is to establish a link between the sediments' ability to hold and transmit water (which is dependant upon its texture) to its gamma ray log response. Such a correlation would allow the gamma ray logs from the contaminant site to be used to identify which sediment layers act as a migration route for the contaminated groundwater.

Le Wang
Faculty Mentor: **Douglas Ruden**

Synonymous and Nonsynonymous SNPs in the Drosophila Genome.

In the drosophila genome there are a variety of SNPs. Some of these are within coding regions. This project determines if these SNPs results in synonymous or nonsynonymous results. A program will determine what amino acid should have resulted and what the actual result was. This program is designed to determine this only for SNPs that occur within coding regions. The program can be used

later to determine this for other genomes such as the human genome. The data produced from this project will then be compared in order to see if SNPs tend to produce synonymous or nonsynonymous genes. I will orally present the results we have obtained and explain their significance.

Benjamin Williams
Faculty Mentor: **James Thomas**

Stanislavski Technique as Applied Theatre for Youth Empowerment

The American approach to instructing youth in the theatre often encourages mechanical acting and over-acting as desirable styles of theatrical performance. Admittedly, these techniques are what help young artists to extract their inner selves and be more open and assertive, but on any level, effective acting technique should lead actors to a more formable state of believability and authenticity. Williams will explore the effects of a more rigorous actor training for youth by combining technique as used in Konstantin Stanislavski System of Acting from the Moscow Art Theatre School with the Mosaic Youth Theatre Model. Williams will present on the effects of using Stanislavski's System of Acting as a tool for young artist empowerment.

The Academy of Scholars

The WSU Academy of Scholars was founded in 1979 to promote and recognize sustained excellence in scholarship and creative achievement. The academy provides support to promising young scholars and periodically hosts special programming for the campus community.

Election to the Academy of Scholars is the highest recognition that may be bestowed upon a Wayne State University faculty member by his or her colleagues. Membership in the academy is for life.

The Office of Undergraduate Research would like to thank the following members of the Academy of Scholars for their participation:

Jeanne Lusher, Distinguished Professor, Pediatrics

Paula Dore-Duffy, Professor, Neurology and Chief of the Division of Neuroimmunology

Robert N. Frank, Professor, Ophthalmology

Charles Schiffer, Professor, Medicine and Oncology

Michael Scrivener, Distinguished Professor, English

Arthur Marotti, Distinguished Professor, English

Gloria Heppner, Associate Vice President for Research and Professor, Internal Medicine

Y. Ravindranath, Professor, Pediatrics

David Kessel, Professor, Pharmacology

The Office of Undergraduate Research would like to thank the following faculty members for their participation:

Laurence Lash, Professor, Pharmacology

Derek Wildman, Assistant Professor, Medicine

Nick Davis, Associate Professor, Pharmacology

Raymond Mattingly, Associate Professor, Pharmacology

Special thanks to:

Jerry Herron, Dean, Irvin D. Reid Honors College

Kevin Piotrowski, Senior Communications Officer, Honors College

Stuart May, Administrative Manager, Honors College

Antonio Austin, Office Services Clerk, Honors College

Carol Baldwin, Assistant Director of Editorial Services, Marketing and Communications

Christa Mowry, Creative Director, Marketing and Communications