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OPENING NIGHT SPEAKER

Monday
March 22, 2004
5:00 PM
Donahue Auditorium
Dolan Center for Science & Technology

*DECODING THE SUBTLETIES OF THE BEST
SELLING “THE DA VINCI CODE”
BY DR. JOSEPH F. KELLY
CHAIR, RELIGIOUS STUDIES*

Ticket Required

Tickets are free but must be requested in advance by sending an email to davincicode@jcu.edu with the following information:

- Your name and mailing address
- Number of tickets (Limit 4)
- Names for additional tickets
- Affiliation of attendees (JCU faculty, staff, students, other)

Tickets will be mailed if request is received prior to March 15.



GENETIC CONFERENCE

Tuesday
March 23, 2004
8:30 AM–2:30 PM
Donahue Auditorium
Dolan Center for Science & Technology
Registration & \$15 Fee Required *

GENETIC UPDATE CONFERENCE PRESENTED BY SAM RHINE

Hosted by Norm Schmidt, Center for Mathematics & Science Education,
Teaching & Technology, JCU

This popular conference is geared toward advanced high school biology
teachers & students. Among the topics covered are:

- **Gametes & Fertilization - the flagellated Bloodhounds!!**
- **Pre-Zygotic and Post-Zygotic Reprogramming**
- **Hox Genes and Segmental Determination**
- **Gemellology - Twins and Twinning**

For registration, contact Sam Rhine (800-727-2315) or Norm Schmidt of
CM/SETT (216-397-4598) .

*Free to the JCU community



SPECIAL GUEST SPEAKER

Wednesday
March 24, 2004
5:30 PM
Gesu Church

WHERE DO I FIND HOPE? HELEN PREJEAN, CSJ

The Margaret F. Grace Lecture
Sponsored by the Cardinal Suenens Center

Sister Helen Prejean, a Sister of St. Joseph from Louisiana, is an internationally recognized advocate for the abolition of the death penalty.

In 1993, Sister Helen wrote *Dead Man Walkin'* which was nominated for the Pulitzer Prize and appeared as #1 on the *New York Times'* Best Seller List for 31 weeks. In 1996, the book was developed into a major motion picture and was nominated for 4 Academy Awards including Tim Robbins for Best Director, Sean Penn for Best Actor, and Susan Sarandon for Best Actress.

Contact: 216-397-4991 or suenens@jcu.edu



ARTISTIC EXHIBIT

Visit the Grasselli Library all week to view the artistic displays highlighting some of the creative works by JCU community members.

Isabel Blaha, Staff, Education & Allied Studies

- *Millpond*
- *Holy Motherhood*
- *Cherubim*
- *Royal Orchid*
- *Portrait*

Susan Buling, Undergraduate & Staff, The Graduate School

- *Untitled still life*
- *Summer Day*

David Wilder, Art History

- *Ornette's Garden*
- *Tower*

Paul Clapp, Undergraduate & Managing Editor, *The Carroll News*

- Photographs

Dr. Alan Stephenson, Communications

- Photographs

MEET THE ARTISTS

Come to the lunch reception to be held in the Grasselli Library Lobby on Tuesday, March 22 at noon. Meet the artists, hear about their works, and enjoy light refreshments.



LUNCH SESSIONS

Tuesday, March 23 (Noon)

❖ **Artistic Exhibit Reception**

Grasselli Library Lobby

Wednesday, March 24 (12:15-1:30 PM)

❖ **Course Development Presenters Lunch**

Dolan Center Conference Room, #A202

RSVP to Cathy at x4520, canson@jcu.edu

Thursday, March 25 (Noon-1:30 PM)

❖ **IRB Open House & Lunch**

Administration Building, Faculty Lounge

Drop in between 12-1:30 for an informal discussion.

RSVP to Cathy at x4520, canson@jcu.edu

Friday, March 26 (Noon)

❖ **Reception for Celebration Participants**

Dolan Center, Reading Room

By invitation only



SCHEDULE OF EVENTS

MARCH 22-26, 2004

All events open to the public and are free unless noted.

Schedule is subject to change

Monday, March 22, 2004

- 3:30-5:00 PM **Faculty Research Reception**
Dolan Center, Reading Room
By invitation only
- 5:00 PM “Decoding the Subtleties of *The Da Vinci Code*”
Dr. Joseph Kelly, Religious Studies
Dolan Center, Donahue Auditorium
Cost: Free, but ticket is required (See page 2)
Reception follows
- 6:30-8:30 PM **PANEL/PAPER PRESENTATIONS: GROUP A**
Dolan Center, Conference Room # A202
Moderator: Dr. Desmond Kwan, Chemistry
- PANEL DISCUSSION: GREEN CHEMISTRY**
- (A.1) *The Chemistry of Tire Recycling with a Focus on
Surface Coatings*
Kristen Hudach, Jacquelyn Catanese, Jenny
Weber
- (A.2) *Biochemical Advances in Green Chemistry*
Heather Jackson and Kelly LaMarca
- (A.3) *A Greener Approach to Industrial Organic Solvents
Utilizing Surfactants for Carbon Dioxide*
Megan Macala and Charles Carfagna



SCHEDULE

Tuesday, March 23, 2004

- 8:00-2:30 PM** **Genetic Update Conference by Sam Rhine**
Dolan Center, Donahue Auditorium
Sponsored by CM/SETT
Geared toward advanced high school biology teachers & students
For registration information, contact Sam Rhine (800-727-2315) or Norm Schmidt of CM/SETT (216-397-4598). See page 3.
Cost: \$15 (No cost to JCU attendees)
- 12:00 Noon** **Reception for Artistic Exhibitors**
Grasselli Library Lobby (See page 5)
Isabel Blaha
Susan Buling
David Wilder
Paul Clapp
Dr. Alan Stephenson
- 1:30-2:30 PM** **Panel/Paper Presentations: Group B**
Dolan Center, Conference Room #A203
Moderator: Dr. Richard Hendrickson, Communications
- PANEL DISCUSSION: MEDIA SENSITIVITY: CHILDREN IN CRISES**
- (B.1) *Columbine: Media in Crisis*
Katie E. Crowther
- (B.2) *The Media on Both Sides of the Trigger: Columbine*
William V. Shutes III
- (B.3) *Sensationalism in Fox News Coverage of the Jesus Medina Story*
Teresa Delagrang



SCHEDULE

Tuesday, March 23, 2004 (continued)

- 3:30-5:00 PM** **Grael Presentations**
Dolan Center, Conference Room #A202
Moderator: Dr. Mary E. Beadle, The Graduate School
Dr. Anne Kugler, History
Dr. Thomas Zlatoper, Economics & Finance
Dr. Larry Schwab, Political Science
Dr. Komla Aggor, Classical & Modern Languages
Dr. Brenda Wirkus, Philosophy
Dr. Sheila McGinn, Religious Studies

Wednesday, March 24, 2004

- 12:15-1:30 PM** **Course Development Presentations & Lunch**
Dolan Center, Conference Room #A202
Moderator: Dr. Marc Lynn, Center for Teaching & Learning
Dr. Dianna Taylor, Philosophy
Dr. Andreas Sobisch, Political Science
Dr. Maria Marsilli, History
Dr. Sharon Kaye, Philosophy
Dr. Leslie Stewart Curtis, Art History

- 1:30-3:00 PM** **Panel/Paper Presentations: Group C**
Dolan Center, Conference Room #A203
Moderator: Dr. Susan Long, Sociology

PANEL DISCUSSION: HEALTH & SOCIETY

- (C.1) *Reasons for using complementary and alternative medicine by primary care patients*
Jessica Perdue
- (C.2) *Health & Wellness in Today's China*
Timothy A. Grose



SCHEDULE

Wednesday, March 24, 2004 (continued)

- 1:30-3:00 PM (continued)
- (C.3) *Changing Patterns of Caring for the Elderly in Japan*
Dr. Susan O. Long, Sociology
- (C.4) *The Perspective of Younger People with Alzheimer's Disease*
Dr. Phyllis Braudy Harris, Sociology

- 3:30-5:00 PM
- Panel/Paper Presentations: Group D**
Dolan Center, Conference Room #A203
Moderator: Dr. James Swindal, Philosophy
- (D.1) *Sustainable International Economic Development Projects in 2nd & 3rd Year Spanish Courses: Focus, Method, & Preservation*
Douglas A. Jackson, Classical & Modern Languages & Culture
- (D.2) *A Man Engaged: The Poet Merton on Race in America*
Trisha Williams
- (D.3) *'Upon Many A Bloody Field:' The 8th United States Colored Troops & the relationships between white officers and black soldiers during the American Civil War*
Dennis P. Wodzinski
- (D.4) *Influence of the Latin Josephus on Geographic Considerations of the Crusades*
Benjamin Joffe

- 3:30-5:00 PM
- Panel/Paper Presentations: Group E**
Dolan Center, Conference Room #A202
Moderator: Dr. Lauren Bowen, Political Science
- PANEL DISCUSSION: CIVIC ENGAGEMENT AT JOHN CARROLL UNIVERSITY (1)**
Presenters: Gina Dowell; Bobby Ina; Greg Holcomb; Matthew Jaworski; Daniel O'Malley



SCHEDULE

Wednesday, March 24, 2004 (continued)

- 4:00-5:00 PM **General Poster Session**
Dolan Center, Atrium
Light Refreshments
- 5:30 PM **“Where Do I Find Hope?”**
Helen Prejean, CSJ
Gesu Church
The Margaret F. Grace Lecture (See page 4)
Sponsored by the Cardinal Suenens Center
- 6:30-8:00 PM **Panel/Paper Presentations: Group F**
Dolan Center, Conference Room #A203
Moderator: Dr. Desmond Kwan, Chemistry
- PANEL DISCUSSION: Green Chemistry
- (F.1) *Pesticides*
Angela Orovets, Katy Mikols, Andrew Gedeon
- (F.2) *Alternative Products*
Christina Staszak & Allison Sopp
- (F.3) *Recoverable Reagents & Catalysts*
Joseph Haoui and Matthew Kelley

Thursday, March 25, 2004

- 10:00 -11:30 AM **Panel/Paper Presentations: Group G**
Dolan Center, Conference Room #A203
Moderator: Dr. Juliana MoselyAnderson, Multi-cultural Affairs
- (G.1) *Rediscovering ‘Electrotyping’*
Dr. Charles Zarobila, Grasselli Library
- (G.2) *Monday Night Football: Physics Decides Controversial Call*
Dr. Greg DiLisi, Education & Allied Studies



SCHEDULE

Thursday, March 25, 2004 (continued)

- 10:00 -11:30 AM (continued)**
- (G.3) *Editorial Guidance in a Contentious Judicial Election*
Dr. Richard D. Hendrickson, Communications
- (G.4) *Research on Parents' Perspectives on Poverty-Based Programs in Education*
Dr. Lisa Shoaf, Education; Alexandra Koscho, Graduate Assistant, Education & Allied Studies
- (G.5) *The Biodiversity Frontier: Discovery & Description of Species New to Science*
Dr. Jeffrey Johansen, Biology
- 12:00-1:30 PM** **IRB Open House & Lunch**
Administration Building; Faculty Lounge
Reservations to Cathy, x4520
- 1:30-3:00 PM** **Panel/Paper Presentations: Group H**
Dolan Center, Conference Room #A203
Moderator: Dr. Krystyna Nowak-Fabrykowski
- PANEL DISCUSSION: LISTENING TO THE VOICES OF STUDENTS, TEACHERS, FOSTER PARENTS, PRINCIPALS AND COUNSELORS**
- (H.1) *Care for Foster Children in Cleveland*
Dr. Krystyna Nowak-Fabrykowski; Fred Buchstein
- (H.2) *Urban Middle School Students' Perception of Educational Inequality*
Dr. Mark Storz; Lydia Kruse, Graduate Student
- (H.3) *Listening to the Voices of Student Teachers*
Dr. Tom Kelly



SCHEDULE

Thursday, March 25, 2004 (continued)

- 1:30-3:00 PM**
(continued)
- (H.3) *Listening to the Voices of Student Teachers*
Dr. Tom Kelly
 - (H.4) *School Counseling Interns' Expressions of Concern in the Counseling Relationship*
Dr. Nancy Taylor
 - (H.5) *Caring & Supporting Families whose Children Receive Poverty-Based Services*
Dr. Lisa Shoaf
- 1:30-3:00 PM**
- Panel/Paper Presentations: Group I**
Dolan Center, Conference Room #A202
Moderators: Dr. Dianna Taylor, Philosophy & Dr. Richard Clark, Sociology
- PANEL DISCUSSION: THE DEATH PENALTY IN INTERDISCIPLINARY PERSPECTIVE**
- Presenters: Zachary Hooker, Jen Bakisae, & Greg Jolivette**
- 3:30-5:00 PM**
- Panel/Paper Presentations: Group J**
Dolan Center, Conference Room #A202
Moderator: Dr. Margaret Finucane, Communications
- PANEL DISCUSSION: CIVIC ENGAGEMENT AT JOHN CARROLL UNIVERSITY (2)**
- Presenters: Emily Boal; Lea Ogard; Megan Warren; Megan Weiss**



SCHEDULE

Thursday, March 25, 2004 (continued)

- 3:30-5:00 PM** **Panel/Paper Presentations: Group K**
Dolan Center, Conference Room #A203
Moderator:
- (K.1) *Diversity: Success for the Future*
Monica A. Colon
 - (K.2) *Lassoing the Wind: Can the Doctrine of Analogy
do the Trick?*
Nelson Foster
 - (K.3) *The Strategies of Ameliorating the Attrition Rate
of African-American Students at Predominately
White Institutions*
Diane T. Campbell, Multicultural Affairs
- 6:30-8:30 PM** **Science & Mathematics Poster Presenters**
Dolan Center, Atrium
Light Refreshments

Friday, March 26, 2004

- 10:00-11:30 AM** **Panel/Paper Presentations: Group L**
Dolan Center, Conference Room #A203
Moderator:
- (L.1) *Pre-Service Teachers' Attitude toward Students
with Cognitive Disabilities*
Candace Dean
 - (L.2) *The Grasselli Family: Exploring the Legacy of a
Cleveland Family*
Marcy Milota, Grasselli Library



SCHEDULE

Friday, March 26, 2004 (continued)

- 10:00-11:30 AM** (continued) (L.3) *Course Development Grant for 'School Ecology'*
Dr. Krystyna Nowak-Fabrykowski, Education
& Allied Studies
- (L.3) *Introduction to Electrocardiography*
Robert Haas
- 12:00 Noon** **Reception for *Celebration* participants**
Remarks by Dr. David La Guardia, Academic Vice
President
Dolan Center, Reading Room
By invitation only



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Monday, March 22, 2004: 6:30 - 8:00 PM: Group A

Dolan Center, Conference Room #A202

Moderator: Dr. Desmond Kwan, Chemistry

PANEL DISCUSSION: Green Chemistry

(A.1) *The Chemistry of Tire Recycling with a Focus on Surface Coatings*

Kristen Hudach, Jacquelyn Catanese, Jenny Weber, Undergraduates; Advisor: Dr. Desmond Kwan, Chemistry

US Environmental Protection Agency estimates that 250 million scrap tires are produced in this country annually. If these materials are not recycled, they destroy the lining designed to prevent ground and surface water interactions with landfill contaminants. Tire shredding is an advantageous technology in which tires are granulated to chips with a diameter of 3/8". There are many purification processes the tires must undergo before practical application. The products of these processes are used for playground and landscaping mulch as well as athletic tracks. Steel and other fibers from car and truck tires are removed prior to this application. The most common rubber in use for these tires is vulcanized SBR, Styrene Butadiene Rubber. This substrate provides a challenge in the design of coating rubber pieces. It has been found that both organic and inorganic pigments adhere to this substrate during coloration processes.

(A.2) *Biochemical Advances in Green Chemistry*

Heather Jackson and Kelly LaMarca, Undergraduates; Advisor: Dr. Desmond Kwan, Chemistry

According to the EPA the mission of green chemistry is "to promote innovative chemical technologies that reduce or eliminate the use or generation of hazardous substances in the design, manufacture, and use of chemical products." One of the growing areas of green chemistry is the incorporation of biologically based feedstocks, biotechnology, biocatalysis, and biosynthesis into industrial processes. For example, wheat straw is a biologically based feedstock that can be used as an alternative to crude oil in the production of chemicals. The bioconversion of straw into basic molecules such as glucose (from cellulose or xylose from hemicelluloses) can be used to make chemical precursors for the production of plastics and resins, textiles,

(A.3) *A Greener Approach to Industrial Organic Solvents Utilizing Surfactants for Carbon Dioxide*

Megan Macala and Charles Carfagna, Undergraduates; Advisor: Dr. Desmond Kwan, Chemistry

Worldwide, more than 30 billion pounds per year of organic solvents are used by



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industry. Volatile organic compounds (VOCs) and halogenated organic substances, such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and perchloroethylene (PERC) are widely used solvents in industry. Despite widespread use of these organic substances, they cause health and environmental hazards. One possible alternative to the use of VOCs, CFCs, and HCFCs as solvents is the use of Carbon Dioxide (CO₂). Advantages of utilizing CO₂ include it is nontoxic, non-flammable, and chemically benign. Importantly, CO₂ does not contribute to the formation of smog or depletion of the ozone layer. However, CO₂ has not replaced many industrial solvents due in part to the low solubility of common industrial materials. To increase the solubility of many substances in CO₂, surfactants may be used. Utilizing surfactant for CO₂ may lead to a greener approach to many industrial organic solvents.

Tuesday, March 23, 2004: 1:30 – 2:30: Group B

Dolan Center, Conference Room #A203

Moderator: Dr. Richard Hendrickson, Communications

PANEL DISCUSSION: MEDIA SENSITIVITY: CHILDREN IN CRISES

(B.1) *Columbine: Media in Crisis*

Katie E. Crowther, Undergraduate; Advisor: Dr. Richard Hendrickson, Communications

The study of the role of media in times of crisis is an essential component of any comprehensive understanding of the link between reliable information and meaningful communication in electronic culture. Without the media, the public would have little knowledge of breaking news or of the greater societal issues at hand. However, the intense focus that the media places on catastrophe and tragedy presents a crisis for the media itself. It is useful to reflect on media coverage of 1999 massacre that occurred at Columbine High School in Littleton, Colorado. The saturation coverage seemed to ratchet broadcast crime coverage to a new level of intense focus on victims and their trauma. This paper examines the challenges facing the media in such situations and suggests ways to improve the response.

(B.2) *The Media on Both Sides of the Trigger: Columbine*

William V. Shutes III, Undergraduate; Advisor: Dr. Richard Hendrickson, Communications

On April 20, 1999, the way the media would treat teen violence began to change forever with the opening of an assault at Columbine High School in Littleton, Colorado, that would claim the lives of 15 people, two of them the gunmen themselves. The days and weeks that followed the massacre saw people and news outlets around the nation begin to point fingers in all directions. Many of these directions included various facets of media: television, music, and video games turned from



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entertainment to prime suspects in a vicious murder. From reporting the news to potentially causing it, the world of the media has been turned into a monster the likes of Jekyll and Hyde. Though seemingly impossible, the media has come to be on both sides of the trigger at once.

(B.3) Sensationalism in Fox News Coverage of the Jesus Medina Story

Teresa Delagrange, Undergraduate; Advisor: Dr. Richard Hendrickson, Communications

When it comes to the news, one would assume that the audience would take the information they hear and the way it is presented very seriously. Fox News has been known to get their audience's attention by using sensationalism, which targets the viewer's emotions and senses. The Jesus Medina case is a perfect example of how Fox used certain words repeatedly and images to strike a chord with their audience. My conclusion was that Fox's use of sensationalism was inappropriate and misled its audience by straying from the facts.

Wednesday, March 24, 2004: 1:30-3:00 PM: Group C

Dolan Center, Conference Room #A203

Moderator: Dr. Susan Long, Sociology

PANEL DISCUSSION: HEALTH & SOCIETY

(C.1) Reasons of using complementary and alternative medicine by primary care patients

Jessica Perdue, Undergraduate; Advisor: Dr. Susan Long, Sociology

Seven interviews were conducted in order to discern the usage of complementary alternative medicines (CAM) in Northeast Ohio. Many people utilize conventional Western medicine as their primary or sole source for health care maintenance; however, some people seek to relieve pain by using both their primary physician as well as nonconventional forms of healing such as massage, hypnosis, and acupuncture. The focus of the interviews was why people chose to use CAM and how much information was shared with their primary doctor. The majority of interviews conducted revealed that those who used CAM were most likely to have been referred by either their doctor or a close friend for the treatment of chronic pain or to aid in relaxation. In addition, all participants in this sample responded that they felt comfortable discussing their use of CAM with their doctor, but would not always volunteer the information.

(C.2) Health & Wellness in Today's China: Traditional Thought in a Land of



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Progressing Modernity

Timothy A. Grose, Undergraduate; Advisors: Dr. Susan Long, Sociology; Dr. Paul Nietupski, Religious Studies

Traditional medicine in China consists of the traditional theories and practices of health and well-being of China's ethnic groups. Traditional medical theories rely on the idea that the body needs to be in balance with nature in order to achieve wellness. Popular traditional medical procedures in China include herbal medicines and acupuncture (with or without moxa). Through a travel/study grant from the Freeman-Foundation and ASIANetwork, I explored reasons traditional health practices were still being utilized despite the availability of biomedicine through open-ended interviews (in English or through translators) with approximately 10 Chinese (Han) and Tibetan people. I supported the interview information with observations and an extensive bibliography, and began to formulate answers of why traditional health methods are being used. Traditional medical practices in China offer the patient a complete health system with mild side effects that treat the whole person as opposed to a disease's symptoms. Moreover, traditional medicine in China offers an age-old system that is deeply embedded in the cultural roots of China's people and provides a source of national pride.

(C.3) Changing Patterns of Caring for the Elderly in Japan

Dr. Susan Orpett Long, Sociology

This presentation reports on a 2003 qualitative study of elder care in Japan conducted as part of a large collaborative, interdisciplinary project on the effects of the newly created public long term care system. In the past, family caregiving was the norm and was generally associated with wives and daughters-in-law. Results of 29 pairs of interviews with elderly people and their family caregivers show a greater variety of relatives serving as primary caregiver than in the past, and a shifting set of reasons that relatives take on the role of primary caregiver. In addition, styles of decision-making and caregiving appear to be changing from previous norms. The greater availability of formal services under the new long term care insurance system suggests that these trends will be accelerated in coming years.

(C.4) The Perspective of Younger People with Alzheimer's Disease

Dr. Phyllis Braudy Harris, Sociology

Alzheimer's disease (AD) is associated with the aging process. Yet, there are younger people diagnosed with AD, people diagnosed below the age of 65. This presentation focuses on one specific research question concerning this population: Is being diagnosed with a dementing illness at a younger age a different experience? Rarely are younger people with AD directly asked questions, conclusions are based mainly on the perspectives of health care professionals and family members.



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Twenty-three in-depth interviews focusing on the subjective experience of younger people with AD were conducted, as well as two focus groups. From this research eight common themes were identified: 1) trouble obtaining a proper diagnosis, 2) marginalization, 3) changing relationships within the entire family structure, 4) workforce/retirement issues, 5) off-time dependency, 6) lack of meaningful occupation, 7) issues of self-esteem, and 8) awareness of changes in self.

Wednesday, March 24, 2004: 3:30-5:00 PM: Group D

Dolan Center, Conference Room #A203

Moderator: Dr. James Swindal, Philosophy

(D.1) Sustainable International Economic Development Projects in 2nd & 3rd Year Spanish Courses: Focus, Method, & Preservation

Douglas A. Jackson, Classical Modern Languages & Culture

Language for Business is a rapidly growing theme for Spanish, French, German, and Japanese courses in the US. Spanish, in particular, is becoming increasingly more important because of the developing markets of Latin America. These projects take a “Business with a Conscience” approach towards learning culture and language for promoting economic development in Latin America where Peace Corps Volunteers are currently serving. Utilizing materials obtained through the Peace Corps, students’ major course of study, and the Centers for International Business Education and Research, students investigate a country’s economic, political, and geographical infrastructure in groups or individually. The focus of this research is to design a sustainable development project and present it at the mock “International Conference for Sustainable Latin American Development” in order to obtain funding. Students learn to perfect the use of Spanish for Business while practicing grant proposal writing and learning about the economies, politics, and geographies of Latin American countries.

(D.2) A Man Engaged: The Poet Merton on Race in America

Trisha Williams, Graduate Assistant, Religious Studies

As Thomas Merton understood it, his vocation as a Catholic monk made him *more* engaged in the world, not less. Even as he spent the last twenty-seven years of his life “apart,” he could not turn away from the world. He was especially sensitive to the injustice and oppressive conditions that the “Negro” in America was forced to live with at the hands of white, liberal society. Merton engaged the complex challenge of racial injustice in America in several of his publications. However, around the same time, Merton also turned to poetry to express his observations, experiences, anger and conclusions about social injustice. In this presentation, I will



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offer an interpretation of one of his most famous poems on race, “Picture of a Black Child with a White Doll.” In doing this, I will show that Merton’s poetry is a product of his painstaking reflection on specific historical events in America’s haunting past. And, while difficult to comprehend (at first) due to his extensive use of illusion, metaphor and irony, his poetry carries a far greater impact—intellectually and emotionally—than his prose.

(D.3) ‘Upon Many A Bloody Field:’ The 8th United States Colored Troops & the relationships between white officers and black soldiers during the American Civil War

Dennis P. Wodzinski, Undergraduate

In July of 1863, during the middle of the American Civil War, the 54th Massachusetts Volunteer Infantry, a unit composed of white officers and black soldiers, made history with their futile assault against Fort Wagner outside Charleston, S.C. As a result of their efforts, approximately 180,000 ‘men of color’ entered into the Union war effort under the command of white officers and helped change the course of the war and American history as well. In order to investigate the unique relationships that developed once black soldiers began to serve under white officers, this paper examines the men (white and black) who served in the 8th United States Colored Troops raised out of Philadelphia, PA in late 1863. With such factors as racial prejudice, manual labor, and enraged Southern enemies to deal with, the soldiers and officers of the 8th U.S.C.T. bonded in a unique way which separated their unit from other all-white military organizations.

(D.4) Influence of the Latin Josephus on Geographic Considerations of the Crusades

Benjamin Joffe, transient student; Dr. Nina Melechen, Thesis Advisor

Dr. Louis H. Feldman, Reader; Dr. Ellen Schrecker, Reader, Yeshiva University

In an age of Holy Land fervor, the Latin translation of the works of Flavius Josephus guided a virtually ignorant population of crusaders to Palestine with invaluable information about Near Eastern sites and the paths leading to them. As this area of study has gone largely untouched by modern scholarship, this research project will explore both the value of the Latin Josephus to the geographical considerations of crusading and also the impact it had on the lives and the missions of pilgrimages throughout the period. Primarily, the paper will focus on William of Tyre’s *History of Deeds Done beyond the Sea* and the Crusade chronicle of Fulcher of Chartres. As a means of comparison, Peter Comestor, whose *Historia Scholastica* drew widespread popularity in Western Europe during the age of institutionalized twelfth-century crusading, will play a useful role as an important medieval author who made use of Josephus in theological writings.



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Wednesday, March 24, 2004: 3:30-5:00 PM: Group E

Dolan Center, Conference Room #A202

Moderator: Dr. Lauren Bowen, Political Science

PANEL DISCUSSION: CIVIC ENGAGEMENT AT JOHN CARROLL UNIVERSITY (1)

Civic Engagement has become an increasingly important part of John Carroll University students' education. Students who engage in service to the community and the university strive to improve the human condition, a construct fundamental to a just society. Students from different areas of civic engagement discuss their experiences with the democratic process. Representatives of the JCU Student Union and students who have run for political office in their communities will address the following questions in their presentations: Briefly describe your experience. How did the people you interacted with affect your sense of self? How did completing this experience help you to grow? How has this experience complemented your educational experience at JCU? (did the experience challenge or confirm the classroom learning)

Presenters: Gina Dowell, Student Union; Bobby Ina, Political Candidate
Greg Holcomb, Political Candidate; Matthew Jaworski, Political Candidate; City Councilperson; Daniel O'Malley, Student Union

Wednesday, March 24, 2004: 6:30 - 8:00 PM: Group F

Dolan Center, Conference Room #A203

Moderator: Dr. Desmond Kwan, Chemistry

PANEL DISCUSSION: GREEN CHEMISTRY

(F.1) *Pesticides*

Angela Orovets, Katy Mikols, Andrew Gedeon, Undergraduates

We wish to explore the hazards of pesticides on foods and the green alternatives to them. Experimentally, the Environmental Protection Agency has determined the maximum level of pesticide residue that is allowed to remain on foods. For our experiment, we would like to test for the pesticide levels on local fresh fruits and vegetables. From this, we will determine if they stay within the limits of what the Environmental Protection Agency has deemed safe for ingestion. It is found that certain crops are only tested for certain pesticides, when they could be using other ones. From our experiment, we would like to also observe if the proper pesticides are being used. If not, then we will also test the level of illegal pesticides that are present on the fruits and vegetables. Therefore, from our



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results we will be able to determine whether or not green methods are better than what is being currently used.

(F.2) *ALTERNATIVE PRODUCTS*

Christina Staszak and Allison Sopp, Undergraduates

As technology advances, the damage that has been done to the environment is becoming more and more evident. As a result, the need for environmental solutions is becoming more in demand, thus the emergence of green chemistry. Green chemistry is the study of processes and products that reduce or eliminate the use and generation of hazardous products. Even though significant developments have been made by the Pollution Prevention Act of 1990 to improve the current environmental situation, there are still many contributions that can be made by individuals in their own homes to make further advances. For instance, rather than using products containing high concentrations of ammonia, such as Windex and Formula 409, which is a powerful eye and respiratory irritant, one could use a mixture of vinegar, lemon juice, and water to clean his or her windows. The purpose of our presentation is to educate people on the importance of green chemistry and the small changes that can be made that will cause long-term effects and benefits in the environment through the use of alternative products.

(F.3) *Recoverable Reagents & Catalysts*

Joseph Haoui and Matthew Kelley, Undergraduates

The concept of recoverable catalysts and reagents will be presented based on recent research. In particular, immobilized catalysts, solvents and other reagents will be explored in detail. Immobilized reagents take the form of a molecule attached to an insoluble base. The insoluble base can take the form of any of a number of polymeric, metallic, or other materials. After the reaction has taken place, ideally the reactant and base can be recovered and then regenerated. This leads to an overall reduction of the amount of material used and wasted.

Thursday, March 25, 2004 (10:00 - 11:30 AM) Group G

Dolan Center, Conference Room #A203

Moderator:

(G.1) *Rediscovering 'Electrotyping'*

Dr. Charles Zarobila, Curator of Special Collections, Grasselli Library & Breen Learning Center

During much of the nineteenth century, the printing of books was aided by the use



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of "electrotyping." "Electrotyping" was a process through which copies, or "electros," of pages of type or illustrations were made so that printers could use them to mass produce books without wearing out or destroying original type or illustrations. However, "electrotyping" is now a forgotten art. The purposes of this research project are to recover techniques of "electrotyping," to make some modern "electros," and to show how this once common, but now unfamiliar, process was used in printing.

(G.2) Monday Night Football: Physics Decides Controversial Call

Dr. Greg DiLisi, Education & Allied Studies

Previously, this article described the vector analysis of the projection of a 3-dimensional event onto a 2-dimensional surface (see *The Physics Teacher*, Volume 41, Number 8, November, 2003). Specifically, the analysis examined a controversial call of a videotaped football play (occurring in 3-dimensions) from a single camera and the observational error created by the camera's projection of that play onto the 2-dimensional football field. Now, the analysis has been extended to include multiple camera perspectives and the transformations of screen coordinates into field coordinates.

(G.3) Editorial Guidance in a Contentious Judicial Election

Dr. Richard D. Hendrickson, Communications; F. Dennis Hale

When faced with a complex and controversial public question, readers look to a newspaper's opinion columns for clarification, analysis and advocacy. The 2000 election for Ohio Supreme Court was such an occasion, highlighted by a series of anonymous advertisements attacking an incumbent seeking reelection. This research examines the content of 107 editorials and commentaries from Ohio newspapers during that campaign, asking whether the newspapers attempted to correct impressions created by unfair characterizations of either candidate in advertisements or attacks by opponents. The findings contain ample evidence that Ohio's papers did provide such information and the authors conclude that the newspapers did a satisfactory job of serving that clarifying function. (This is scheduled for publication in the summer 2004 issue of *Association for Journalism and Mass Communication's Newspaper Research Journal*.)

(G.4) Research on Parents' Perspectives on Poverty-Based Programs in Education

Dr. Lisa Shoaf, Education; Alexandra Koscho, Graduate Assistant, Education

Research informs us that parental involvement and support enhances student academic achievement. Title I guidelines require parental participation in planning programs. The need to gain parental perspectives has become a challenge for



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school administrators and teachers. This research serves the goal of gaining parental participation and collecting the perceptions of parents whose children participate in federal sponsored programs such as Title I, National School Lunch Program (NSLP), and School Breakfast Program (SBP). Collaboration with a social service agency, offering services to parents in a specified region, was key to meeting the goals of this project. The collaboration fostered a connection with a social worker that could provide recruitment strategies and facilitate the focus groups in that she already had an existing relationship with parents whose children received services from federal school related programs. Results from the focus group interviews have provided feedback on how programs are viewed by clients and how school administrators can improve those programs.

(G.5) The Biodiversity Frontier: Discovery & Description of Species New to Science

Dr. Jeffrey R. Johansen, Biology

In recent years there has been a growing awareness that we are currently in the midst of the sixth mass extinction event on earth. Species are going extinct at a rate that is estimated to be 1000-10,000 times as fast as the pre-*Homo sapiens* rate of one species extinct per million species on earth per year. This loss of species is occurring before we even understand what biodiversity actually exists on earth. This has led to an effort on the part of biologists world-wide to inventory, discover, and describe earth's biodiversity before it is gone. At John Carroll University, we are actively involved in this endeavor, and have recently found over a dozen species of algae that are new to science. This effort has involved two biology faculty members and several student collaborators. This paper presents some of the highlights of our discoveries.

Thursday, March 25, 2004 (1:30-3:00 PM) Group H

Dolan Center, Conference Room #A203

Moderator: Dr. Krystyna Nowak-Fabrykowski, Education & Allied Studies

PANEL DISCUSSION: LISTENING TO THE VOICES OF STUDENTS, TEACHERS, FOSTER PARENTS, PRINCIPALS AND COUNSELORS

(H.1) Care for Foster Children in Cleveland

Dr. Krystyna Nowak-Fabrykowski, Education & Allied Studies; Fred Buchstein

(H.2) Urban Middle School Students' Perception of Educational Inequality

Dr. Mark Storz; Lydia Kruse, Graduate Student

(H.3) Listening to the Voices of Student Teachers

Dr. Tom Kelly

(H.4) School Counseling Interns' Expressions of Concern in the Counseling Relationship



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Dr. Nancy Taylor

(H.5) Caring & Supporting Families whose Children Receive Poverty-Based Services

Dr. Lisa Shoaf

All too frequently the most important people involved in education are left out of the conversation about planning for educational reform. Students, parents, administrators, teachers and counselors, are at the heart of education, yet their voices are often absent from educational research. Each member of our panel has attempted to privilege voice in their research and argue that the lived experiences of those who are central to the educational enterprise should enjoy a more prominent place in the research literature. Krystyna Nowak-Fabrykowski and Fred Buchstein examine the school experiences of foster children in the Cleveland area from the perspective of foster parents. Through these parental voices, this investigation attempts to illuminate the experiences of foster children in schools and provide suggestions for how teachers can help better meet the needs of foster children. Lydia Kruse explores the frequency, classroom impact, and parental concerns of obesity among sixth grade students. Preliminary data suggest that many parents of obese students would support and participate in school-based interventions. Thomas Kelly, in concert with Mark Storz, reports on a study that interviewed secondary JCU teacher education candidates about their conceptions of critical democratic teaching. Six themes emerged from these interviews. Candidates' perspectives, in their own words, will be shared as they related to the themes of choice, community, critical consciousness, advocacy, authenticity, and accountability. Lisa Shoaf examines parents' perceptions of the effectiveness of federally funded programs in schools in meeting their children's needs. Some suggestions will be offered as to how to foster this dialogue in schools. Mark Storz examines urban middle school students' perceptions of educational inequity. Preliminary data indicate that many students are keenly aware of the educational inequities that impact the quality of their school experiences, suggesting important implications for teachers as they strive to meet the needs of their young adolescents. Nancy Taylor and the school counseling interns explore the factors that both facilitate and hinder the development of caring in the counseling relationship. Anecdotes that indicate that clients see and experience caring in the counselor/client relationship will be shared.

Thursday, March 25, 2004 (1:30-3:00 PM) Group I

Dolan Center, Conference Room #A202

Moderator: Drs. Dianna Taylor & Richard Clark

PANEL DISCUSSION: THE DEATH PENALTY IN INTERDISCIPLINARY PERSPECTIVE



PAPER & PANEL ABSTRACTS

Presenters: Zachary Hooker, Jen Bakisae, & Greg Jolivet

This panel is based on students' experiences taking 'The Death Penalty,' a course team-taught by Dr. Dianna Taylor (philosophy) and Dr. Richard Clark (criminology). We aim to provide a glimpse into both the death penalty and the interdisciplinary classroom setting. The presentation will have three parts. The first will concern an outline of how the class was conducted, and will also provide a short history of capital punishment. The second will develop the death penalty as a debate within the discourse of moral philosophy. This involves finding definitions of esoteric ideas like justice, and their implementation through legal institutions. The final portion focuses on how the death penalty has developed in a practical and statistical sense. We will conclude with a contemporary snapshot of the death penalty in international perspective. Through this organized view of capital punishment, we will present an example of 'The Marshall Hypotheses,' which posits that through awareness and education, the death penalty will slowly fall into disfavor among a given population.

Thursday, March 25, 2004 (3:30-5:00 PM) Group J

Dolan Center, Conference Room #A202

Moderator: Dr. Margaret Finucane, Communications

PANEL DISCUSSION: CIVIC ENGAGEMENT AT JOHN CARROLL UNIVERSITY (2)
Undergraduate Presenters: Emily Boal, Alternative Spring Break; Lea Ogard, Alternative Spring Break; Megan Warren, Communicating Common Ground; Megan Weiss, Alternative Spring Break and JUSTICE

Civic Engagement has become an increasingly important part of John Carroll University students' education. Students who engage in service to the community and the university strive to improve the human condition, a construct fundamental to a just society. Students from different areas of civic engagement discuss their experiences with service. Representatives of the student group JUSTICE, participants of the Alternative Spring Break experience, and students from the Communicating Common Ground project will address the following questions in their presentations: Briefly describe your experience. How did the people you interacted with affect your sense of self? How did completing this experience help you to grow? How has this experience complemented your educational experience at JCU? (did the experience challenge or confirm the classroom learning)



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Thursday, March 25, 2004 (3:30-5:00 PM) Group K

Dolan Center, Conference Room #A203

Moderator: Dr. Edward Peck, The Graduate School

(K.1) *Diversity: Success for the Future*

Monica A. Colon, Undergraduate; Advisor: Ms. Susan Finnerty, Management, Marketing, & Logistics

Many people look at the world through a tunnel. We do not see that the world around us is changing every day and the people in the world are changing too. Along with the changes in the world, we are seeing changes in the workforce. People from all different upbringings and cultures are in the workplace but there are still those individuals that refuse to realize how prudent these people are to the new economy that is in place. By the year 2050 there will no longer be a majority in the United States. That should be a sign that the workforce must change and implement diversity. We can no longer be afraid of diversity because we must embrace it in order to succeed. I will address the true meaning of diversity, its challenges, its benefits, and how companies such as General Motors and Advantica Inc. (Denny's Restaurants) have implemented diversity in order to succeed and expand their businesses. Funding provided in part by the Ohio Board of Regents.

(K.2) *Lassoing the Wind: Can the Doctrine of Analogy Do the Trick?*

Nelson Foster, Undergraduate; Advisor: Dr. Sharon Kaye, Philosophy

One of the most contemplated and complicated questions humankind has ever asked itself - and the universe, is "What is the nature of God?" Regardless of culture, race, gender, or societal development, religion and the divine has been a major subject of theosophical debate. Within this question lies an even more elusive idea - "If God is a supernatural, non-corporeal being, one beyond the capacities of human sensory perception, how is it that we know of the existence of the divine?" One of the leading theories of western theosophy has come from medieval theologian Thomas Aquinas (1225-1274) through his famed doctrine of analogy. This theory asserts that we can achieve knowledge of God because his being is neither exactly the same or completely different from anything in the world. Rather, God resembles everything as the first cause. Put another way, humanity knows God through a process of abstraction, where the human mind uses tangible objects to serve as models of interpretation. Thus, humans project these images onto the "body" of God as a means of understanding. This paper and presentation will highlight some of the key axioms of the doctrine of analogy, including support and refutation, as well as some pre-western ideas on the nature of God, through ancient Egyptian Hermetic Philosophy. Funding provided in part by the Ohio Board of Regents.



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(K.3) The Strategies of Ameliorating the Attrition Rate of African-American Students at Predominately White Institutions

Diane T. Campbell, Multicultural Affairs

African-American students who choose to matriculate in predominantly white universities continue to face challenges of academic, emotional, and social survival. The sociocultural and sociostructural issues surrounding these issues have been well documented for decades now, yet, academic attrition rates continue to climb across the nation (Bennett & Okinaka, 1999). The debate on minority student achievement began in the 60's with the baby boomers, continued into the end of the 20th century with generation X, and is thriving today in the new millennium. The primary purpose of this paper is to examine the nature, characteristics, and elements of survival for Black students at a predominantly white suburban college. Upon examining the nature, characteristics, and elements of survival, the use of counseling techniques (i.e. focus groups, individual counseling etc.) will then be explored to determine if early intervention could curtail the attrition rate if offered at the onset of enrollment.

Friday, March 26, 2004 (10:00-11:30 AM) Group L

Dolan Center, Conference Room #A203

Moderator:

(L.1) Pre-Service Teachers' Attitude toward Students with Cognitive Disabilities
Candace Dean, Undergraduate; Advisors: Dr. Garson, Director of Initial Licensure Program; Dr. Lanese, Education & Allied Studies

There has been research and studies done to determine teachers or pre-service teachers' attitudes toward inclusion (pre-service and pre-student teacher are parallel). A study with regular education teachers displayed that teachers' attitudes towards inclusion were consistent with lack of confidence, both in their own instructional skills and in the quality of support and resources available to them. I used the scale Opinions Relative to the Integration of Students with Disabilities (ORI) to survey pre-students' attitudes toward inclusion. I would like to take this information that I have gathered to determine if pre-student teachers' attitudes towards students with cognitive disabilities makes a shift from the beginning to the end of their pre-student teaching. I would like to analyze (from the results of the scale) how their attitudes change if they change at all, and if confidence and experience go hand in hand working with students with cognitive disabilities. Funding provided in part by the Ohio Board of Regents.



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(L.2) The Grasselli Family: Exploring the Legacy of a Cleveland Family

Marcy Milota, Grasselli Library

The Grasselli family, once prominent in Cleveland, has all but disappeared from the local landscape, except for two prominent features on the campus of John Carroll University, Grasselli Tower and Grasselli Library. Who were the Grassellis; where did they come from; what role did they play in Cleveland's industrial and philanthropic communities; and what were their links to our university? This presentation attempts to answer these questions. Part local history and part genealogy, this ongoing research project provides insight into Cleveland's industrial past, explores the Grasselli family tree, and uncovers interesting connections to other prominent Clevelanders and events of the recent past.

(L.3) Course Development Grant for 'School Ecology'

Dr. Krystyna Nowak-Fabrykowski, Education & Allied Studies

During the course "School Ecology," early childhood preservice teachers discussed many issues related to the ethical behavior of teachers, both in the classroom and on Blackboard. What we were trying to do in this course was to help preservice teachers understand the code of ethics as well as the requirements and expectations. We were discussing real life situations from their practicum and fictional events from the books *White Teacher* and/or *The Kindness of Children*. Our preservice teachers also interviewed: a school nurse, social worker, and school counselor about their duties and responsibilities toward children and how a teacher can cooperate with them. Preservice teachers responded very positively to the discussion on ethical dilemmas and appreciated all the WebPages and discussion.

(L.4) Introduction to Electrocardiography

Robert Haas, Postbaccalaureate Student

The electrocardiogram (EKG) is one of the most important medical tests, because it gives such a wealth of information about the heart, instantly and in real time, while yet being so simple and harmless to do. This talk will introduce the technique, explaining the standard EKG trace, and its diagnostic changes in various heart ailments. The audience may have the opportunity to check their own EKGs on the EKG machine the speaker built for his term project in his concurrent degree program at the Cleveland Institute of Electronics. Medical electronics—"integration scholarship" crossing the boundaries between physics and biology—might in this way make an attractive topic to add to John Carroll's premedical teaching curriculum.



GENERAL POSTER ABSTRACTS (P1)

Wednesday, March 24, 2004: Presenting 4:00 to 5:00 PM

(P1.1) Resolving Communication in Hierarchies: Role Reversal and the Communication Counselor

Aaron Hanlon, Undergraduate; Advisors: Drs. Marc Lynn & Jonathan Smith, Management, Marketing & Logistics

Standard business communication in current organizations is conducted through level to level conversations and meetings. This presentation argues that information rarely flows uniformly and unbiasedly from the very top of the organization to the very bottom of the organization (vice versa) using this method. Instead role reversal and ultimately a communication counselor should be used to convey information in large vertical organizations. Role reversal is an immediate step to accelerate information. It occurs when a lower level employee is placed in an executive's position or an executive is placed in a lower level employee's position. The communication counselor, however, is the permanent, long-term approach. He/she is a trusted individual who communicates directly with everyone in his/her organization. He/she is then responsible for filtering the information so that it can be relayed throughout the entire organization so ideas are not lost, information is not changed, and all employees have a voice.

(P1.2) Blogging: Is it Journalism?

Kathleen Hagerty, Undergraduate; Advisor: Dr. Richard Hendrickson, Communications

The growth of the Internet and home computers has fostered a new kind of communication, "weblogs," which has been shortened to "blogs," and a generation of communicators called "bloggers." Many of these communicators concentrate their efforts on conversations and opinions involving politics. Many regard themselves as journalists. This paper explores the practice of "blogging" and reports what others have said about the ethics of its practice and credibility of its practitioners.

(P1.3) Affirmative Action in Undergraduate Education: Study of Admissions Processes in the State of Ohio in the Wake of the Michigan Rulings

Darlene Forrest, Undergraduate; Advisor: Dr. Lauren Bowen, Political Science

Affirmative Action in higher education admissions has become increasingly contested in American politics in the last decade. Controversy seems to arise whether race-based admission is constitutional. Opponents argue that any consideration of race the equal protection clause of the 14th Amendment, while proponents argue that diverse student bodies enhance quality of education. In 2003, the US Supreme Court upheld the use of race as a relevant criteria for school admission



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while striking down the point system at the undergraduate level. Considering the ambiguity provided by the Michigan cases, this research examines the different admission criteria for colleges in the state of Ohio to ascertain the impact of affirmative action decisions and the number of students of color in Ohio. Funding provided in part by the Ohio Board of Regents.

(P1.4) Street Racing in Japan

Robert Maxwell, Undergraduate; Advisor: Dr. Susan Long, Sociology

Street racing has developed as a subculture in Japan, a society known for a high degree of social conformity. The release of the legendary *Pluspy* video in 1977 acted as a catalyst for the street racing movement in Japan. It developed into a unique subculture that is catered to by Japanese businesses. Using a variety of primary source documents such as automotive magazines and internet bulletin boards, this presentation shows that street racing provides a non-conformist alternative for those involved. However at the same time, it is fully incorporated into contemporary Japanese consumerism and thus ultimately encourages a type of conformity to mainstream cultural patterns.

(P1.5) 'Men for Other:' John Carroll University during the First and Second World Wars, 1917-1945

Sarah E. Keating, Undergraduate; Advisor: Dr. Marian Morton, History

For John Carroll University, a Jesuit and Catholic University, the First and Second World Wars were difficult years, which tested the university's perseverance and determination. Both the World War I Student Army Training Corps (S.A.T.C.) and the World War II Navy V-12 program allowed John Carroll University students to exhibit their patriotism, promote their Catholic values and strive to maintain a vibrant and active college community. Students and faculty throughout the war years promoted national unity, encouraged liberty loan collections and incorporated military training into their college curriculums. The stories of the individual men who fought and served our country during the First and Second World War are a testament of what it means to defend one's country. This paper seeks to bring alive the stories of the John Carroll University students who ardently sought to live out the Jesuit motto "men for others," throughout the First and Second World Wars. Funded by the Dean of Arts and Sciences at John Carroll University.

(P1.6) Keeping the Counselor Healthy: Prevention of Counselor Burnout

Pamela Peters, Tara LeMasters, Allison Metz, Graduate Students in Community Counseling

Burnout is defined as a state of fatigue or frustration brought about by an individ-



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ual's devotion to a cause or way of life that failed to meet expectations. Counselors are considered to be "at risk" for burnout for many reasons including: having sensitivity towards client problems, and a non-judgmental approach which leads to assuming personal responsibility for failure, and working with clients who require considerable attention and support which can drain counselors of their emotional resources. Signs of burnout include: depersonalization, emotional exhaustion, and reduced personal accomplishment. This literature review studies correlates of burnout in counseling settings. Prevention techniques such as: role renewal, appropriate management of professional life, professional self-care, and personal self-care are explored. Specifically, some techniques involve knowing client's authentic needs, associating with committed, concerned colleagues, engaging in self-assessment, continuing education, consulting, networking, managing stress, and engaging in supportive relationships and recreational activities.

(P1.7) Impact of Heart Disease on Middle-Aged and Older Women in the USA and in African Countries

Chinelo N. Enwonwu, Undergraduate; Advisor: Dr. Miles Coburn, Biology
Heart disease is one of the cardiovascular diseases that affect middle-aged and older women in the USA and in African countries. Previous research has shown that as women age, they do not know that their risks for this disease increases. My research was aimed at identifying some of these reasons. The survey was conducted in Nigeria and in the USA as well, by means of a questionnaire. Reasons given by women in Nigeria were compared to those given by women in the USA to see the similarities and differences. Non-middle aged and older women from both countries also participated in the study and their reasons were compared to that of their counterparts. Analyses of the results are being carried out. Funding provided in part by the Ohio Board of Regents.

(P1.8) The Stigmatization of Individuals Who Experience Depression and Receive Psychotherapy

Julie Goldyn, Undergraduate; Advisors: Drs. Denise Ben-Porath and Janet Larsen, Psychology

This investigation examined the stigmas associated with depression and seeking treatment. In a recent study conducted by Ben-Porath (2002), it was found that individuals who suffered from depression were viewed more negatively especially when they sought help. However, the origin of depression, the termination of an intimate relationship, introduced a confound. The present study was designed to clear up this ambiguity. It was hypothesized that individuals seeking treatment for a break-up or for depression that resulted from a break-up would be viewed most negatively. Preliminary analysis indicated interactions between problem type and



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treatment on scales of emotional instability and confidence. Funding provided in part by the Ohio Board of Regents.

(P1.9) *Biochemical Analysis of Mitral Valves from Heart Transplant Patients*
Megan Macala, Undergraduate; Dr. Jane Grande-Allen, Rice University

Left ventricle assist device (LVAD) can bridge a patient to transplant, or enable their failing ventricle to recover to the extent that a transplant is no longer necessary. LVAD is a critical field of medical research due to the extreme shortage of donor hearts available for transplantation and provides an additional option for patients otherwise ineligible for transplant. It is unclear whether LVAD can improve valvular functions, which is important given that LVAD are in FDA phase 3 trials for widespread, long-term use. The contents of water, DNA and collagen in leaflet and chordae samples from LVAD and non-LVAD mitral valves were measured. It was found that there was no significant difference in water, DNA and collagen content between valves that were non-LVAD and LVAD.

(P1.10) *A Greener Approach to Industrial Organic Solvents Utilizing Surfactants for Carbon Dioxide*

Megan Macala and Charles Carfagna, Undergraduates; Advisor: Dr. Desmond Kwan, Chemistry

Worldwide, more than 30 billion pounds per year of organic solvents are used by industry. Volatile organic compounds (VOCs) and halogenated organic substances, such as chlororfluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and perchloroethylene (PERC) are widely used solvents in industry. Despite wide spread use of these organic substances, they cause health and environmental hazards. One possible alternative to the use of VOCs, CFCs, and HCFCs as solvents is the use of Carbon Dioxide (CO₂). Advantages of utilizing CO₂ include it is non-toxic, nonflammable, and chemically benign. Importantly, CO₂ does not contribute to the formation of smog or depletion of the ozone layer. However, CO₂ has not replaced many industrial solvents due in part to the low solubility of common industrial materials. To increase the solubility of many substances in CO₂, surfactants may be used. Utilizing surfactant for CO₂ may lead to a greener approach to many industrial organic solvents.

(P1.11) *Global Money Laundering*

Brandon Greene, Undergraduate; Advisor: Dr. Walter Simmons, Economics & Finance

Money laundering is a problem domestically as well as abroad; thus, making it a problem of global concern. It poses a threat to the integrity of international finan-



GENERAL POSTER ABSTRACTS (P1)

cial systems, and undermines the functioning of financial systems, and the fight against corruption. The important link between financial market integrity and financial stability is underscored by the key principles for financial sector supervision. Although the empirical evidence on the magnitude of financial abuse, financial crime, and money laundering is limited, its impact on individual countries cannot be overlooked. Due to its obscure nature, money laundering occurs outside of the peripheral of economic statistics. Nevertheless, as with other aspects of underground economic activity, rough estimates have been put forth to give some sense of the problem. Using current studies, research, and empirical evidence we will research and analyze money laundering trends globally. Funding provided in part by the Ohio Board of Regents.

(P1.12) EFFECTIVENESS OF PATIENT PROFILE INFORMATION IN THE DETECTION OF OPEN ANGLE GLAUCOMA

LATRICE DORSHON EDWARDS, UNDERGRADUATE; COLLABORATOR: DR. EDWARD BURNEY, OPHTHALMOLOGY, UNIVERSITY HOSPITALS; ADVISOR: DR. CATHERINE MILLER, CHEMISTRY

University Ophthalmologist Inc. under the direction of Edward N. Burney, M.D. will use a survey in the attempts of identifying race, medical and family history, sex along with age as possible risk factors in detecting glaucoma. This is a double blind study to determine the effectiveness of patient profile information by using a survey as a screening tool for the detection of high or moderate risk for primary open angle glaucoma versus clinical examination and optic nerve photography. This was a small study due to time limitations and data continues to be collected. However, present data suggest there may be some benefit from this type of screening. Funding provided in part by the Ohio Board of Regents.

(P1.13) Brief Biography: Frieda Hennock

Anne Talibisco, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.13) Brief Biography: Helen Thomas

Erika Thomas, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.14) Brief Biography: Linda Ellerbee

Becky Meil, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.14) Brief Biography: Carol Burnett

Erin Hazi, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.15) Brief Biography: Helen Gurley Brown

Kristin Kerrick, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.15) Brief Biography: Mary Tyler Moore



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Chelsea Larson, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.16) *Brief Biography: Katie Couric*

Beth McGinley, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.16) *Brief Biography: Joan Ganz Cooney*

Christopher Smith, Undergraduate; Advisor: Dr. Mary , Communications

(P1.17) *Brief Biography: Christina Amanpour*

Kathy Caputo, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.17) *Brief Biography: Ida Lupino*

Rebecca Wojcicki, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.18) *Brief Biography: Greta Garbo*

Maggie Mickunas, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.18) *Brief Biography: Pauline Frederick*

Beth Cooper, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.19) *Brief Biography: Margaret Bourke-White*

Colleen Cain, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.19) *Brief Biography: Barbara Walters*

Linette Caraballo, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.20) *Brief Biography: Katharine Hepburn*

Kaitlin Brzoska, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.20) *Brief Biography: Ida Tarbell*

Kate Cooke, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.21) *Brief Biography: Gloria Steinem*

Jennifer Kramer, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.21) *Brief Biography: Lucille Ball*

Lindsay Smith, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.22) *Brief Biography: Dorothy Dandridge*

Karoline Butler, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.22) *Brief Biography: Marilyn Monroe*

Mary Levey, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.23) *Brief Biography: Ruby Dee*

Lakeisha Winstead, Undergraduate; Advisor: Dr. Mary Beadle, Communica-
tions

(P1.23) *Brief Biography: Carole Penny Marshall*

Rosena Jackson, Undergraduate; Advisor: Dr. Mary Beadle, Communications



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(P1.24) *Brief Biography: Dorothy Fuldheim*

Rachel Redcross, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.24) *Brief Biography: Imogene Coca*

Krissie Divers, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.25) *Analysis of Females in Music Videos*

Rosena Jackson, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.26) *Women in the Media*

Krissie Davis, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.27) *Katherine Graham*

Anne Talabisco, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.28) *Ad: The Role of Women on NBC's "Must See TV"*

Kathy Caputo, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.29) *Portrayal of Females in Magazines*

Lakeisha Winstead, Undergraduate; Advisor: Dr. Beadle, Communications

(P1.30) *Analysis of Women in Management Positions in Cleveland Radio/TV Stations*

Erika Thomas, Undergraduate; Advisor: Dr. Mary Beadle, Communications

(P1.31) *Women's Role in TV Shows over the Years*

Maggie Mickunas, Undergraduate; Advisor: Dr. Mary Beadle, Communications



MATH/SCI POSTERS (P2)

Thursday, March 25, 2004

*Presenting 6:30-7:15 PM

‡Presenting 7:15-8:00 PM

****(P2.1) Study of the Domains in ADAMTS-L Proteins***

Jacquelyn Catanese, Undergraduate; Advisor: Dr. Suneel Apte, The Cleveland Clinic Foundation

The acronym ADAMTS protease stands for a disintegrin-like and metalloprotease domain with a total of four thrombospondin Type 1 motifs. Punctin A is a protein that contains secondary domains of ADAMTS, which function in the extracellular matrix of both humans and mice. To study the key domains of Punctin A, the plasmid was transfected into COS-1 cells from a monkey kidney line for further study. Nine different constructs of the protein were created in order to discover the function of each domain. The individual constructs have a deleted domain or multiple deleted domains. The domains in question are the 5' N-terminus, CRD, Spacer, and the 3' C-terminus that happens to be divided into 3 portions as well. Western Blots were conducted using a variety of 28 monoclonal antibodies to discover the key domains of this protein.

‡*(P2.2) The Chemistry of Tire Recycling with a Focus on Surface Coatings*

Kristen Hudach, Jacquelyn Catanese, Jenny Weber, Undergraduates; Advisor: Dr. Desmond Kwan, Chemistry

US Environmental Protection Agency estimates that 250 million scrap tires are produced in this country annually. If these materials are not recycled, they destroy the lining designed to prevent ground and surface water interactions with landfill contaminants. Tire shredding is an advantageous technology in which tires are granulated to chips with a diameter of 3/8". There are many purification processes the tires must undergo before practical application. The products of these processes are used for playground and landscaping mulch as well as athletic tracks. Steel and other fibers from car and truck tires are removed prior to this application. The most common rubber in use for these tires is vulcanized SBR, Styrene Butadiene Rubber. This substrate provides a challenge in the design of coating rubber pieces. It has been found that both organic and inorganic pigments adhere to this substrate during coloration processes.

****(P2.3) Effect of Muskelin 723A on Size of Cos7 Cells***

Lisa Nau, Undergraduate; Advisor: Dr. Josephine Adams, The Cleveland Clinic Foundation



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Muskelin is a recently discovered intracellular protein that mediates cell spreading and cytoskeletal responses to thrombospondin-1, a component of cell extracellular matrix. This experiment studied the effects of Muskelin723A on the size of Cos7 cells over time. Cells were transfected with Muskelin723A and GFP (green fluorescent protein). GFP is a protein that gives fluorescence to the cell cytoplasm and nucleus and can be used as a control marker in living cells. Perimeters of Muskelin 723A transfected cells, GFP transfected cells, and untransfected cells were recorded over the course of 24 days. Mean perimeter and standard deviation were used to determine the trends in cell size. Results were expected to show Muskelin 723A transfected cells significantly larger in size than the GFP transfected and untransfected cells at each time point.

‡ (P2.4) *The Virtual Swarm: A New Approach to Human Swarm Day*

Kelly Zajac, Undergraduate; Advisor: Dr. Dan Palmer, Mathematics & Computer Science

Much work has been done at John Carroll University to simulate the concepts of Swarm Technology. Inspired by numerous “Human Swarm Day” events involving one hundred human agents physically doing tasks such as forming lines and grouping by the color of their t-shirts, the Virtual Swarm software allows for additional variables and controls to be incorporated into the experiments. A simulated environment including walls, obstacles, and the agents is displayed on the monitors of a collection of networked computers. Via the mouse and keyboard, the humans control his or her agent’s activities (movements and communication) instead of physically doing a task, while simultaneously being able to see the rest of the swarm’s actions. The initial scenario implemented in the Virtual Swarm simulated the limited movements, sight, and communication abilities of WEGS robots.

Future updates of the Virtual Swarm software will allow for increased environmental effects, agent capabilities, and experiment customization.

*(P2.5) *Modeling Movement of Boxes on a Carrier Cargo Ship with Software Experiments*

Patrick Cloutier, Undergraduate; Advisor: Dr. Daniel Palmer, Mathematics & Computer Science

The task of loading supplies onto an aircraft carrier is daunting. Crates are loaded onto the deck of the aircraft carrier, and teams of sailors are assigned to take them below decks. A human-swarm experiment was performed to analyze the movement of this cargo to the storage rooms. By analyzing traffic flow and bottlenecks, it is hoped that more efficient logistics algorithms can be generated. The simulation consisted of multiple paths to destinations, elevators, storage rooms, corridors, all with associated delays and congestion. We wrote software for this experiment to track all the movement of all the people and all the boxes, and record the contents



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of each storeroom. The software used UPC scanners to record where a box originated, what path it took and where/when it was delivered. The data collected by the software will be used to re-create all the decisions made during the experiment, providing the ability to develop better algorithms.

‡ (P2.6) *The Continuum Hypothesis is True...for All Practical Purposes*

Natalie Scala, Undergraduate; Sarah Horton, Undergraduate, Stephen F. Austin State University; Alicia Richardson, Undergraduate, Morgan State University; Andrea Watkins, Howard University; Advisors: Dr. Barbara D'Ambrosia, Mathematics & Computer Science; Dr. Sheldon Davis, Miami University.

Let G be an uncountable subset of the real numbers; that is, G cannot be put in one-to-one correspondence with the set of natural numbers. It is shown that if G is a closed set, open set, or F_σ set, then the cardinality of G is the same as the cardinality of the real numbers. In particular, the Continuum Hypothesis is true for the basic sets in the construction of the Borel sets. This project was completed at Miami University, with funding from the National Science Foundation's REU program.

* (P2.7) *Diethylaluminum Chloride Mediated Vinylsilane Synthesis: Comparison of Different Solvent Systems*

Kristen Hudach, Undergraduate; Advisor: Dr. Desmond Kwan, Chemistry
Aromatic ketones were converted to one-carbon elongated-vinylsilanes in a convenient one-pot operation via Peterson protocol. Reactions were conducted in pentane and triethylamine solvents. Results indicate that triethylamine appeared to be a more suitable solvent for such a transformation producing vinylsilanes with greater chemo- and stereo-selectivity than pentane.

‡ (P2.8) *Swarm-Based Graph Coloring Algorithm*

Jason Shifflet, Undergraduate; Advisor: Dr. Daniel Palmer, Mathematics & Computer Science

It has been mathematically proven that all planar graphs can be colored with only four colors; for non-planar graphs there exist exhaustive, deterministic algorithms to find a minimal coloring. By harnessing the emergent behavior of swarm algorithms, a flexible, non-deterministic algorithm can be developed to find minimal coloring solutions for both classes of graphs. We have developed a Java-based simulation program that uses JGraphpad as a foundation. In the simulation, a swarm of virtual agents is "released" on to a user defined graph in order to find its minimal coloring. If a solution exists, it can probabilistically be obtained through the stabilization of the swarm. A final coloring solution is found by using a successively smaller color palette; the smallest palette for which the swarm stabilizes repre-



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sents the chromatic number of the graph. This use of emergent behavior demonstrates the potential of applying swarm algorithms to solve traditionally deterministic problems.

****(P2.9) Localization of Proteoglycans within Normal and Myxomatous Mitral Valves***

Nicholas A. Olshavsky, Undergraduate; Advisor: K. Jane Grande-Allen, The Cleveland Clinic Foundation

The purpose of this study was to recognize the presence or absence of two specific proteoglycans (PGs), versican and decorin, within normal and myxomatous mitral valve samples. The tissues were fixed, paraffin embedded, sectioned then ran through a series of immunohistochemical staining procedures. These slides were then compared to the movat pentachrome stain of each section to localize each PG with a specific extracellular component. We hypothesized that there is a discernible difference between normal and myxomatous leaflet and chordae with respect to the PGs that are present in each. Our results were that both PGs are found within the samples, however, at varying abundances. Moreover, decorin is found with collagen and is the more abundant of the two PGs. Versican, on the other hand, was prominently found with elastin and shows a relatively consistent abundance in each of the samples. Funded by the American Heart Association.

‡ (P2.10) Difference of the Hypotenuse & the Leg of a Primitive Pythagorean Triple

Octavio Mesner, Undergraduate; Dr. Leo Schneider, Mathematics & Computer Science

Funding provided in part by the Ohio Board of Regents.

****(P2.11) New Records of Epilithic Cyanobacteria of Great Smoky Mountains National Park***

Catherine E. Olsen, Graduate Student, Biology; Advisors: Dr. Jeffrey Johansen, Biology; Dr. Rex Lowe, Bowling Green State University

The All Taxa Biodiversity Inventory (ATBI) began in 1997 with the goal of inventorying and providing a database of information for every species located in Great Smoky Mountains National Park (GSMNP). ATBI work on algal communities has yielded many new records to GSMNP and new records to science. In this study, algal samples were collected from three wet rock seeps, and both living and preserved material was examined. Seven *Leptolyngbya* (Oscillatoriales, Cyanobacteria) species were identified from the three sites. Of our seven *Leptolyngbya*, three are putatively new species to science, two have been reported as new records to the park, and two others did not fit any previously circumscribed taxa, but currently there is not enough material to describe them as new species. In the past, North



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American phycologists have used European keys to identify species of cyanobacteria. Rather than depending solely on these descriptions, morphological, ecological, and biogeographical data were combined to determine taxonomic identification.

‡ (P2.12) *Implementation of the Firefly Algorithm to Test the Apple Rendezvous Package & Its Applications in Swarm Behavior*

Jason Schatz, Undergraduate; Dr. Marc Kirschenbaum, Mathematics & Computer Science

The John Carroll University swarm research team has developed a Java-callable library for general communication across a wireless network, including point-to-point and broadcast transmissions. As both a driving problem and as a proof of concept, we have implemented the “firefly synchronization” algorithm on a collection of independent Imacs. This algorithm gets its name from *Pteroptyx malaccae*, one of several species of fireflies that can flash in unison. The library is based on the Apple Rendezvous package that provides a way of networking computers, allowing them to seamlessly join or leave at any time. Each computer connects wirelessly and represents a user-specified number of fireflies. The program, running on each computer, generates a simulated “flash” for each firefly, broadcasts that information using the library, and eventually synchronizes across the whole network. The library uses the User Datagram Protocol, UDP, to allow any computer to join an execution and immediately begin sending data to all other computers. Likewise the other computers on the network are not dependent on a connection-oriented protocol so each computer may leave at any time without affecting the others. The library is now being used to support developing swarm applications.

*(P2.13) *Chemiluminescent Nitrocellulose Filter Binding Assays: SOD/DNA Interaction as an Example*

Joshua D. Czerwinski, Undergraduate; Advisor: Dr. David P. Mascotti, Chemistry

Manganese Superoxide Dismutase (MnSOD) provides important protection from oxidation of intracellular bacterial components; most importantly, DNA. Thus, the binding of MnSOD to DNA is an important process in bacterial cells. The goal of the current study is to quantify the binding of the MnSOD to DNA by use of a modified nitrocellulose filter binding assay (NCFBA). The most important modification from the standard procedure is the replacement of radioactively labeled DNA with biotinylated DNA that can be detected by a streptavidin-linked chemiluminescent system. The assay consists of separating protein, DNA, and protein-DNA complexes by vacuum filtration through a single or double membrane filter. In the single filter format, a nitrocellulose filter is used which binds protein and protein-DNA complexes. In the double filter format, the top layer is nitrocellulose



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and the bottom layer is positively charged nylon which binds free DNA. Using this technique, we show quantitative agreement with previously published work that relied upon radiolabeled DNA. Thus, this technique should be useful for studying any protein-nucleic acid interaction.

‡ (P2.14) *New Species Records of Cyanobacteria from the Great Smokey Mountains Nation Park*

Jamie L. Sanchez, Undergraduate; Advisor: Dr. Jeffrey R. Johansen, Biology
Funding provided in part by the Ohio Board of Regents.

*(P2.15) *Assessing Defensive High Esteem*

Ife S. Ashabo, Undergraduate; Advisor: Dr. John H. Yost, Psychology
Standard self-report measures of self-esteem are open to participants responding in a socially desirable way (e.g., presenting themselves as having high self-esteem; HSE). In this study, the goal was to distinguish between those who truly have HSE and those who may be presenting themselves as having HSE (but actually have low to moderate self-esteem). The rationale is that extreme responding is indicative of defensiveness. Participants also read a short scenario describing a possible transgression by someone with low self esteem and recommend a penalty. Past research has demonstrated that individuals are intolerant of their own negative characteristics in others. Assuming that those with defensive HSE find low self esteem (LSE) to be negative, it is predicted that HSEs that endorse a relatively high number of extreme responses on the self esteem measure will recommend a higher penalty to the LSE transgressor than LSEs, in general, and HSEs who do not endorse a relatively high number of extreme responses. A focused-contrast analysis supported the hypothesis as HSEs who endorsed a relatively high number of extreme responses recommended the highest penalty to the LSE target. This research was generously supported by a Summer Research Fellowship from The John Huntington Fund for Education. Funding also provided in part by the Ohio Board of Regents.

‡ (P2.16) *Detecting the Presence of Infectious Diseases within Atherosclerotic Plaques*

Amanda Kae Leoberg, Undergraduate; Advisor: Dr. Marc Penn, Cell Biology Research Lab, The Cleveland Clinic Foundation
Atherosclerosis is a disease characterized by plaque formation that targets the inner lining of the arterial wall. One possible mode of genesis of the plaques is through a certain disease that can possibly assist in the production or formation of the atherosclerotic plaques. The effects of infectious diseases have been studied as a possible link to the progression of atherosclerosis. Plaques from human angiogram samples were analyzed for the detection of human DNA and the DNA of



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five infectious diseases to determine the correlation of the specific disease and angiogenesis. No significant correlation was established within the detection limits of the infectious diseases.

*** (P2.17) *Beyond the Mouth: The Connection between the Mouth and an Individual's General Well-Being***

Chineze N. Enwonwu, Undergraduate; Dr. Michael Nichols, Chemistry

Many research studies have shown a connectedness between chronic oral infections, particularly periodontal (gum) disease and systemic diseases/disorders such as cardiovascular disease, stroke, pre-term low birth weight babies, and diabetes.* These studies indicate people with periodontal disease are more likely to experience systemic disorders. I conducted a study of the literature, centered on the connection between periodontal disease and the conditions above. A systematic approach was used: exploring the meaning of oral health, the anatomy of the mouth and its role in systemic diseases, the connection between periodontal disease and the mentioned systemic conditions and the consequences of the findings. Funding provided in part by the Ohio Board of Regents.

* Oral Health in America: A Report from Surgeon General. Bethesda, Md: Department of Human Services; 2000. NIH Publication No 00-4713

‡ (P2.18) *Number Theory & Cryptography*

Carly Grey, Undergraduate; Advisor: Dr. Paul Shick, Mathematics & Computer Science

Public Key Cryptography is a means of sending sensitive information securely that allows a sender to transmit the key openly. The key is a large number which is a product of two primes that is difficult to factor, giving the recipient the information while making it difficult to access by others who may intercept the information. This key helps the sender or recipient encrypt and decipher the information it sends and receives. Because of the length of the key, often a hundred digits long, computers are required to do the work of factoring the number, which may take hundreds of hours. In this project, I will discuss how to build a public key cipher and explore the number theoretic principles behind it. Funding also provided in part by the Ohio Board of Regents.

*** (P2.19) *A Comparison of Antibiotic Resistance of Bacterial Isolates in Conventional and Organic Milk Samples***

Claire Sullivan, Undergraduate; Advisor: Dr. Valerie Flechtner, Biology

Antibiotic resistant bacteria have been a public health concern since becoming widely available in the 1940s. Bacteria that resist multiple antibiotics are particu-



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larly dangerous as they make infections difficult to control. Antibiotic resistance has increased because of the use of antibiotics in agriculture. Low levels of antibiotics have been put into animal feed to improve growth and production performance of the animals. Lincomycin, a drug used only infrequently in human medicine, is the most common feed supplement. We examined the antibiotic resistance of six samples isolated from commercial milk samples. Three samples were from cattle fed antibiotic-supplemented feed (Group A). Three samples were “organic” (i.e. from cattle fed antibiotic-free feed) (Group B). A total of seventy isolates were obtained: fifty-six from Group A and fourteen from Group B. We found that all isolates were resistant to lincomycin. Also, numerous strains were multiply resistant; however, there were no significant differences in resistance between Groups A and B. Funded by the Huntington Research Foundation.

‡ (P2.20) *The Effectiveness of Dialectical Behavior Therapy in an Eating Disorder Population*

Jessica Hackman, Undergraduate; Collaborator: Dr. Denise D. Ben-Porath, Psychology

Recently, several investigators have become interested in applying Dialectical Behavioral Therapy (DBT) treatment to other populations, including individuals with eating disorders (ED) (e.g., Safer, Telch & Agras, 2001; Telch, Agras, & Safer, 2001). Although these studies provide support for the effectiveness of DBT treatment, neither employed the full DBT model (e.g., individual therapy, group therapy, phone consultation, team consultation) and participants presented with symptoms that could be managed with once a week outpatient treatment. The present study sought to determine (1) the generalizability of standard DBT treatment to an ED population, and (2) the effectiveness of this treatment to a population with moderate/severe ED symptoms. Results indicated a significant reduction in anxiety, depression, eating disordered pathology, and a greater expectation to effectively regulate negative affect post DBT treatment.

* (P2.21) *Recoverable Reagents & Catalysts*

Joseph Haoui and Matthew Kelley, Undergraduates; Advisor: Dr. Desmond Kwan, Chemistry

The concept of recoverable catalysts and reagents will be presented based on recent research. In particular, immobilized catalysts, solvents and other reagents will be explored in detail. Immobilized reagents take the form of a molecule attached to an insoluble base. The insoluble base can take the form of any of a number of polymeric, metallic, or other materials. After the reaction has taken place, ideally the reactant and base can be recovered and then regenerated. This leads to an overall reduction of the amount material used and wasted.



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‡ (P2.22) *SERS-Based Spectroelectrochemical Investigation of DNA Hybridization: Possible Control of Hybridization Equilibria of Surface Immobilized DNA Using Applied Potential*

Matthew Kelley, Undergraduate; Collaborator: Dr. Joel M. Harris, Chemistry, University of Utah

Thiol modified 10 to 13 mer DNA oligomers were immobilized on silver electrodes and observed via Surface Enhanced Raman Spectroscopy (SERS). The structure of the DNA and its interaction with the surface was able to be changed by changes in the interfacial electric field. Hybridization and melting of DNA or adsorption and desorption from the surface was observed and determined based on characteristic changes in the SER spectra. This was achieved by immobilizing double-stranded (ds) DNA directly, or by immobilizing single-stranded (ss) DNA, in which case the complementary strand was in solution.

*(P2.23) *Polymeric Clones*

Joseph Haoui, Undergraduate

The research that was done last summer was regarding the "cloning" of thickening agents for the Sherwin-Williams corp. Several studies were carried out simultaneously with respect to the effects of colorants and lattices on the thickening of the paint. The cloning project focused on two main types of thickeners, HASE and HEUR. HASE type thickeners are Alkali swellable agents. HEUR type thickeners are urethane based. The two types of thickeners work using different mechanisms.

‡ (P2.24) *Measuring the Radiation Patterns of Microwave Antennas*

Tim Mitchell, Graduate Assistant, Physics

The direction and intensity of electromagnetic waves emitted from an antenna is called the antenna's radiation pattern. Knowing the radiation pattern of antennas which emit microwave radiation has useful applications in wireless communications. The setup for testing such patterns had existed previously, but without a computer to link the various components. The purpose of this project is to design a computer program that will run tests on antennas without the experimenter being present; after the user has entered all pertinent information about the test, the program will run itself and record and graph the data obtained. This setup was achieved using *Labview 6.1*, and the results were consistent with known radiation patterns.

‡ (P2.25) *New Species Records of Green Algae from the Great Smokey Mountains National Park*

Catherine E. Olsen, Graduate Student; Collaborator: Dr. Jeffrey R. Johansen, Biology



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‡ (P2.26) *Araphid Diatoms from Moonlight Bay*

Kyle C. Scotese, Undergraduate; Collaborators: Eduardo Morales, Academy Of Natural Sciences (Philadelphia); Dr. Jeffrey R. Johansen, Biology; Advisor: Dr. Jeffrey R. Johansen, Biology

* (P2.27) *Image Processing For Quantifiable Analysis of Multiple Sclerosis Brain Lesions*

Patricia Jogodnik, Undergraduate; Advisor: Dr. Elizabeth Fisher, BME, Lerner Research Institute, The Cleveland Clinic

Multiple Sclerosis is a progressive disease of the nervous system and the most common neurological disorder among young adults. Lesions or plaques form on the Central Nervous System white matter when a breakdown of the fatty myelin sheath surrounding the neural substance occurs. Many different lesions may form and disappear and then reappear in any area of the brain at any given time. The primary purpose of the research supervised by Dr. Elizabeth Fisher is to analyze MS brain lesions graphically and quantifiably over a time period, to see if some measurable correlation exists that can give us insight into why these lesions come about, where they originate, where they will next appear, and so forth. (116) In this specific study, the change of the masses of lesions in Magnetic Resonance Images of MS Brains from a base Time T1 to T2 are calculated, and the lesions are individually labeled for analysis.

‡ (P2.28) “Chemokine Expression in a Heart Ischemia/Reperfusion Model”

Kathryn Stucke, Undergraduate Student; Jennifer A. Major, Department of Immunology; Dr. Thomas A. Hamilton, Department of Immunology, Lerner Research Institute, The Cleveland Clinic

The CXC chemokines MIP-2 (CXCL2) and KC (CXCL1) are induced following incision in a mouse surgical injury model and in vitro in response to pro-inflammatory stimuli. The chemokine MCP-5 (CCL12) is observed in-vitro following stimulation with the immune modulators IL4 and IFN γ . It is reasonable to predict that these chemokines would be expressed following ischemia/reperfusion in a mouse model of coronary injury. The left anterior descending aorta of female C57 BL/6 mice was tied off with a single suture for thirty minutes. After the period of ischemia the heart was reperfused and blood flow resumed. The mice were sacrificed at various time points and RNA was prepared from the heart tissue. MCP-5 as measured by RT/PCR was detected at two hours after reperfusion and at even greater levels at four hours. MIP-2 and KC were measured by northern blot analysis and observed only at four hours past reperfusion. None of the chemokines were detected in heart tissue from the sham operation or the zero time point. Funded by USPHS grant AI50739.



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**(P2.29) Dissolution of Copper(II) Oxide in Various Concentrations of Nitric Acid to Determine the Surface Composition Using Atomic Absorption Spectroscopy*

Erica J. Newbould, Undergraduate; Advisor: Dr. Michael P. Setter, Chemistry
Examination of the surface of fine powders is an important process in characterizing materials. In this project, copper(II) oxide was chosen for dissolution in nitric acid concentrations ranging from 9% to 0.0001%. Samples of copper(II) oxide powder were added to the nitric acid solutions. Small aliquots of the resulting mixtures were passed through a filter to block undissolved solid and then analyzed for dissolved copper using atomic absorption spectroscopy. The lower the pH of the solution, the higher the fraction of powder that would dissolve. A model was developed to relate the amount of copper in solution to pH and times of dissolution. This relationship predicted that the powder would not dissolve in solution with a pH higher than 6.3 ± 0.8 . When copper(II) oxide was placed in deionized water, no dissolution could be detected. Funded by the John Huntington Fund for Education and the George W. Codrington Charitable Foundation.

‡ (P2.30) Regulation of SECIS Binding Protein-2

Nicholas C. James, Undergraduate; Dr. Carri Gerber, Cell Biology, Lerner Research Institute, The Cleveland Clinic

Selenium is an essential trace element. Deficiencies in selenium have been linked to conditions such as sterility, cancer, and atherosclerosis. The majority of biologically available selenium is in the form of the 21st amino acid, selenocysteine (Sec). The mechanism by which Sec is incorporated is only partially understood. What is known is that incorporation is dependent on cis-acting elements, such as the UGA codon and a highly structured stem-loop structure called the Sec insertion sequence (SECIS) element. A trans-acting factor, such as SECIS Binding Protein-2 (SBP-2), is responsible for binding to the SECIS element and recruiting elongation factors. This project used luciferase as a reporter gene to determine whether or not regulation of SBP-2 was under translational control. In vitro translation, using a rabbit reticulocyte lysate, was performed, and a luminometer was used to quantify the translatability of the wild-type construct compared to the D5 mutation. Our results were inconclusive due to contamination in the laboratory.

** (P2.31) Theoretical Calculations on HAT-(CN)₆*

Matthew Kelley, Undergraduate; Advisor: Dr. David Ewing, Chemistry
A set of theoretical calculations on hexaazatriphenylenehexacarbonitrile, HAT-(CN)₆, a molecule with interesting electrochemical and magnetic properties has



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been completed. $\text{HAT}(\text{CN})_6$ exists as the neutral molecule and in various anionic forms. Theoretical calculations at various levels of theory, ranging from an AM1 semi-empirical method to a B3LYP/DZP density functional theory, have been completed for the neutral molecule, the monoanion, and dianion singlet and triplet. Also, energy calculations at higher levels of theory have been completed to relate the stability of each state. The calculations predict a lowering of symmetry as the charge increases. The AM1 calculations do quite well compared to the more rigorous *ab initio* calculations. Predicted structures agree with the little that is known experimentally about those species.

*** (P2.32) *Biochemical Advances in Green Chemistry***

Heather Jackson and Kelly LaMarca, Undergraduates; Advisor: Dr. Desmond Kwan, Chemistry

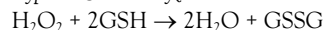
According to the EPA the mission of green chemistry is “to promote innovative chemical technologies that reduce or eliminate the use or generation of hazardous substances in the design, manufacture, and use of chemical products.” One of the growing areas of green chemistry is the incorporation of biologically based feedstocks, biotechnology, biocatalysis, and biosynthesis into industrial processes. For example, wheat straw is a biologically based feedstock that can be used as an alternative to crude oil in the production of chemicals. The bioconversion of straw into basic molecules such as glucose (from cellulose or xylose from hemicelluloses) can be used to make chemical precursors for the production of plastics and resins, textiles, adhesives, films and coatings, solvents, cosmetics, food additives, and medical materials. In the realm of biocatalysis, many naturally occurring enzymes can be used in organic synthesis such as using oxidases in phenolic polymerization and epoxidation of various alkenes. Biological alternatives have the potential to significantly advance the field of green chemistry.

*** (P2.33) *Mercapto Succinic Acid: Inhibitor and Probe for New Enzymatic Activity***

Kelly LaMarca, Undergraduate; Advisor: Dave Starke, Dr. John Mieyal, Pharmacology, Case Western University

Reversible glutathionylation has gained prominence as a mechanism for regulation of cellular redox signal transduction. The mechanism of de-glutathionylation of proteins by glutaredoxin has been well characterized, but it is not known how S-glutathionylation is catalyzed. We have hypothesized that a glutathione peroxidase (GPx) enzyme could catalyze protein-SSG formation.

Typical GPx-catalyzed reaction:



Proposed GPx-catalyzed reaction:





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Mercapto Succinic Acid (MSA) is an inhibitor of GPx. Therefore, we examined its specificity and cellular effectiveness in anticipation of using it as a probe for the proposed new enzymatic activity (protein-SSG formation). Our data show that MSA is a specific inhibitor for GPx and can be used in cells to manipulate H₂O₂ levels, suggesting that MSA is an appropriate probe for an undiscovered GPx-like enzyme for S-glutathionylation. Funded by National Institutes of Health and Veteran's Administration.

**(P2.34) Inhibition of IL13Ralpha2 in a Glioblastoma Cell Line Results in Apoptotic Cell Death*

Ryan Ficco, Undergraduate; Advisor: Dr. Martha Cathcart, Cell Biology, Lerner Research Institute, The Cleveland Clinic Foundation

IL13Ralpha2 has been described as a “decoy” receptor for the cytokine Interleukin-13 (IL-13). As a decoy receptor, IL13Ralpha2 binds IL-13 with high affinity and thus prevents it from signaling through its “normal” receptor. Interestingly, IL13Ralpha2 is only expressed in high amounts in the testes and in certain neoplasms, such as glioblastoma (a highly malignant brain tumor). IL-13 has different effects on the various cells of the body. It has been shown, however, to induce apoptosis, or programmed cell death, in certain cell types such as monocytes and activated microglia. We hypothesize that the high levels of IL13Ralpha2 on some glioblastoma cell lines may block IL-13 signaling pathways that would normally lead to apoptosis. In order to test this hypothesis, we inhibited IL13Ralpha2 expression in a glioblastoma cell line using an siRNA cocktail. This inhibition resulted in significant levels of apoptosis. We are continuing work on this project in order to understand the mechanism of this induced apoptosis.

**(P2.35) Matching-to-Sample Protocols Show No Differential Nodality Effects*

Evan Gioia, Undergraduate; Advisor: Dr. A. Imam, Psychology

A within-participant comparison of simple-to-complex, complex-to-simple, and simultaneous protocols was conducted establishing three seven-member equivalence classes for two undergraduate participants. The protocols were implemented under either accuracy-only or accuracy-plus-speed conditions while keeping number of presentations of training and testing trials equal. The results support previous reports of differential effects on acquisition, but showed no differential effects on nodality as a function of the prevailing protocol. The absence of a nodality effect is accounted for in terms of the equal presentation of conditional-discrimination trials.

‡(P2.36) Pesticides

Angela Orovets, Katy Mikols, Andrew Gedeon, Undergraduates

We wish to explore the hazards of pesticides on foods and the green alternatives



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to them. Experimentally, the Environmental Protection Agency has determined the maximum level of pesticide residue that is allowed to remain on foods. For our experiment, we would like to test for the pesticide levels on local fresh fruits and vegetables. From this, we will determine if they stay within the limits of what the Environmental Protection Agency has deemed safe for ingestion. It is found that certain crops are only tested for certain pesticides, when they could be using other ones. From our experiment, we would like to also observe if the proper pesticides are being used. If not, then we will also test the level of illegal pesticides that are present on the fruits and vegetables. Therefore, from our results we will be able to determine whether or not green methods are better than what is being currently used.

**(P2.37) Alternative Products*

Christina Staszak and Allison Sopp, Undergraduates

As technology advances, the damage that has been done to the environment is becoming more and more evident. As a result, the need for environmental solutions is becoming more in demand, thus the emergence of green chemistry. Green chemistry is the study of processes and products that reduce or eliminate the use and generation of hazardous products. Even though significant developments have been made by the Pollution Prevention Act of 1990 to improve the current environmental situation, there are still many contributions that can be made by individuals in their own homes to make further advances. For instance, rather than using products containing high concentrations of ammonia, such as Windex and Formula 409, which is a powerful eye and respiratory irritant, one could use a mixture of vinegar, lemon juice, and water to clean his or her windows. The purpose of our presentation is to educate people on the importance of green chemistry and the small changes that can be made that will cause long-term effects and benefits in the environment through the use of alternative products.

*Presenting Thursday, March 25; 6:30-7:15 PM

‡Presenting Thursday, March 25; 7:15-8:00 PM



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