

# Welcome Letter from Dr. Beadle

Welcome to JCU's Second Annual *Celebration of Scholarship!* This year we have included two lectures; one speaker sponsored by the Woodrow Wilson Visiting Fellow program and one speaker sponsored by The Institute for Catholic Studies and the Bishop Pilla Program. These sponsorships are an important aspect of scholarship and demonstrate the importance of integration and application of knowledge. Our poster and panel presentations include work from many departments, from faculty and from graduate and undergraduate students. These presentations demonstrate the central role that teaching and discovery has on our campus.

*A Celebration of Scholarship!* was started with the idea that we needed an occasion to communicate to each other the work that we all share and to congratulate faculty and students for their professional accomplishments. I hope you enjoy the next week and the *Celebration*.

Mary E. Beadle, Ph.D.  
Dean, The Graduate School

For more information and updates to the schedule, visit our website at [WWW.JCU.EDU/RESEARCH/SCHOLARSHIP](http://WWW.JCU.EDU/RESEARCH/SCHOLARSHIP)



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## OPENING NIGHT SPEAKER

Monday  
March 17, 2003  
5:00 PM  
Jardine Room



**Deborah Horan**  
"Ethical Reporting in the Middle East"

A Woodrow Wilson Visiting Fellow and a Michigan Journalism Fellow, Ms. Horan has a wealth of experience in foreign affairs and journalism focusing on the Middle East. Her areas of interest are Iran, Iraq, the Israeli-Palestinian conflict, U.S. foreign and economic policy in the Middle East, and the Arab media. She has covered events such as the implementation of the Oslo peace accord, the 1996 election of Benjamin Netanyahu, the 1994 return of the Palestinian authority government to Gaza and Jericho, and the assassination of Yitzhak Rabin.

As a Michigan Fellow, she studied the ability of satellite TV to effect political and social change on Arab media. Ms. Horan received her M.S. in journalism from Boston University and a B.A. in Political Science from the University of Oregon.

Currently working for the *Chicago Tribune*, she has also worked for *The Houston Chronicle*, *The San Francisco Chronicle*, and *Inter-Press Service* as a Jerusalem-based stringer; her work has been published in national magazines including *Newsweek* and *Psychology Today*. In 1999, *The Houston Chronicle* submitted her work to the Pulitzer board and she was a finalist for the Livingston Award for outstanding young journalist that same year.

## SPECIAL GUEST SPEAKER

Tuesday  
March 18, 2003  
5:00 PM



**Antonin Scalia**  
"Catholicism & Justice"  
(Admission by Ticket Only)

Sponsored by The Institute for Catholic Studies and the Bishop Pilla Program

Supreme Court Justice Antonin Scalia will be visiting John Carroll University to present the lecture the "Catholicism & Justice." Appointed to the Court in 1986 by President Reagan, Judge Scalia received his law degree from Harvard Law School and attended Georgetown University and the University of Fribourg (Switzerland).

While the lecture is free and open to the public, admission will be by advance ticket only.

# The event is sold out.

## LUNCH SESSIONS

Drop in for one of these sessions for a light lunch and opportunity to talk! Please call ahead so we'll know how many to expect.

Wednesday, March 19, 2003      11:30 to 1:30 PM

### **"Meet Deborah Horan"**

*Faculty Lounge*

Stop by for something to eat and to chat with our opening night speaker on the ethics of journalism, life in the Middle East, or finding time to write your book. Reservations to Dr. Jackie Schmidt at x4242 or [schmidt@jcu.edu](mailto:schmidt@jcu.edu).

Thursday, March 20, 2003      11:30 to 1:30 PM

### **"Meet the IRB"**

*Faculty Lounge*

Interested in meeting the members of the Institutional Review Board for the protection of human subjects and learning more about federal regulations, ethical concerns, and paperwork while snacking on delicious food?

Call Cathy Anson at x4520 ([canson@jcu.edu](mailto:canson@jcu.edu)) to let us know you're planning to attend and if there's anything in particular you'd like to discuss.

## WORKSHOP

Thursday, March 20, 2003

5:30 PM

### **"Women and Wellness: Mind, Body, and Spirit, How to Maintain Balance in Life to Stay Healthy"**

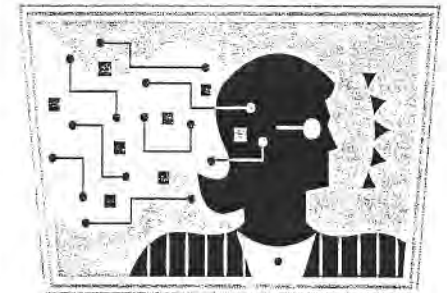
Dr. Holly Perzy

Medical Director of the MetroHealth Clinic in Strongsville Program Director for internal medicine and pediatrics at MetroHealth

*Lombardo Student Center Conference Room*

Sponsored by the Women's Networking Group

Processing too much information? Trying to balance research with teaching and taking care of yourself and your family? Attend this workshop and learn about the connection between spiritual, physical, and intellectual life and your health.



Reservations and fee required. Contact

Dawn Schneeberger, x4322,

[dschneeberger@jcu.edu](mailto:dschneeberger@jcu.edu) for more information and to register.

## SCHEDULE

**Monday, March 17, 2003** 5:00 PM

**“Ethical Reporting in the Middle East”**

Deborah Horan

*Jardine Room*

Lecture and Reception

(See page 2 for program description.)

**Tuesday, March 18, 2003** 5:00 PM

**“Catholicism & Justice”**

Judge Antonin Scalia

Admission by ticket only. Program is sold out.

(See page 3 for program description.)

**Wednesday, March 19, 2003**

**Panel/Paper Presentation A** 10:00-11:30 AM

*O’Dea 3, Lombardo Student Center*

Moderator: Chris Somosi

(A.1) **Signs of Resiliency and Risk for Urban Elementary Students**, by Dr. John L. Rausch, Education & Allied Studies

(A.2) **Science & Religion: Promoting a Dialog** by Dr. Andrew Trew, Religious Studies; Fr. Howard J. Gray, Assistant to the President for Mission & Identity; Dr. James Lissemore, Biology

(A.3) **Edna and Addie—Victims of the Conventions of Motherhood** by Hong Zenisek, English Undergraduate

## SCHEDULE

**Wednesday, March 19, 2003 (continued)**

**“Meet Deborah Horan”** 11:30-1:30 PM

*Faculty Lounge*

Light Lunch & Discussion

(See page 4 for program description.)

**Panel/Paper Presentation B** 2:00-3:30 PM

*Murphy Room*

Moderator: Dr. Amy Hoffman

(B.1) **The Process of Participation in the 2002 Deloitte & Touche Tax Challenge** with Matt Lower, Jeff Cook, Ron Ricca, Aaron Carino and Dr. Gerald Weinstein

(B.2) **A Linked Pair of Integer Sequences Implies the Primes Are Infinite** by Michael Somos & Robert Haas, Post-Baccalaureate

(B.3) **Middle School Interest & Literacy Survey** by Margaret Sweeny, Education Undergraduate

(B.4) **Fuimos a Machu Picchu: Incorporating Culture into Written Spanish at the 100 Level** by Drs. Douglas A. Jackson & Christine Scott, Classical & Modern Languages & Culture

**Panel/Paper Presentation C** 2:00-3:30 PM

*O’Dea 4, Lombardo Student Center*

Moderator: Dr. Marc Lynn

(C.1) **Harlem Renaissance: Multidisciplinary, Multi-Media Educational Resource** with panelists Dr. Tamba Nlandu, Elizabeth Stiles, Dr. Hélène Sanko, Dr. Val Lassiter, Patricia Dawson, Dr. Shirley Seaton.



## SCHEDULE

Wednesday, March 19, 2003 (continued)

**Panel/Paper Presentation D** 3:30-5:00 PM

*Murphy Room*

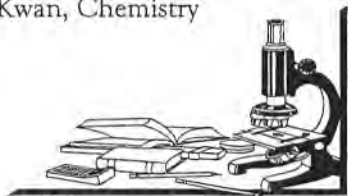
Moderator: Dr. James Swindal

(D.1) **Intellectual and Ethical Development: A Journey to Tolerance** by Dr. John Yost, Psychology

(D.2) **Viewer Responses to September 11** by Dr. Margaret Finucane, Communications

(D.3) **Organoaluminum Reagents in Vinylsilane Synthesis** by Megan Macala and Nick James, Chemistry Undergraduates

(D.4) **Green Chemistry: An Environmental Friendly Way to Do Chemistry** by Dr. Desmond Kwan, Chemistry



Thursday, March 20, 2003

**Grael Presentations** 10:00-11:30 PM

*Murphy Room*

Moderator: Dr. Mary Beadle

Dr. Richard Fleischman, Accountancy

Dr. Maryclaire Moroney, English

Dr. Karen Gygli, Communications

Dr. Marian Morton, History

## SCHEDULE

Thursday, March 20, 2003 (continued)

**"Meet The IRB"** 11:30-1:30 PM

*Faculty Lounge*

Light Lunch & Discussion

(See page 4 for program description.)

**Panel/Paper Presentation E** 2:00-3:30 PM

*Murphy Room*

Moderator: Dr. Dianne Welsh

(E.1) **Zora Neale Hurston's *Their Eyes Were Watching God*: Insights from Historical Medicine & Cinema** by Robert Haas

(E.2) **Making an Early Christian Text** by Dr. Charles Zarobila, Curator of Special Collections, Grasselli Library

(E.3) **The Scholarly Communication System: Market Dysfunction and What Is Being Done About It** with Ruth E. Fenske, Head, Reference Unit and Librarian, and other library faculty.

(E.4) **A Leadership Study of the Five Districts Who Have Demonstrated the Most Improvement on Ohio's Report Card** with Dr. Lisa M. Shoaf, Education and Brian Sinchak, M.Ed.

**Poster Presenters: Group 1** 3:30-5:00 PM

*Atrium, Lombardo Student Center*

(See Page 14 for list of presenters in this group.)

## SCHEDULE

Thursday, March 20, 2003 (continued)

**Panel/Paper Presentation F** 3:30-5:00 PM

*O'Dea 4, Lombardo Student Center*

Moderator: Elizabeth Orr

### Media Ethics Panel

(F.1) **Freedom of Zimbabwe's Press: Is It Truly Free?** by Elizabeth Orr, Communications Undergraduate

(F.2) **Reporting from the Front Lines** by Katarina Brkic, Communications Undergraduate

(F.3) **Al Jazeera: CNN of the Arab World** by Kathryn Ferguson, Communications Undergraduate

(F.4) Presentation by Rita Mayekar, Communications Undergraduate

**Panel/Paper Presentation G** 3:30-5:00 PM

*Murphy Room*

Moderator: Dr. Phyllis Braudy Harris

(G.1) **Empirical Examination of Theoretically Anticipated Market Priced Risk Factors** with Marc D. Richards, MBA Graduate Student and Dr. LeRoy Brooks, Finance

(G.2) **What Is Justice, and What Does Justice Require?** by Meredith Block, Sociology Undergraduate

(G.3) **Welfare Reform: Successes, Failures, and the Need for Re-Authorization** by Caitlin Janet Rohrer, Sociology Undergraduate

## SCHEDULE

(G.4) **The Psychological Adjustment of Older Women's Relocation to a Long-Term Care Setting: A Qualitative Study** by Jill M. Connors, Sociology Undergraduate

Thursday, March 20, 2003 (continued)

**Poster Presenters: Group 2** 5:00-6:30 PM

*Atrium, Lombardo Student Center*

(See Page 16 for list of presenters in this group.)

**Workshop** 5:30 PM

**Women and Wellness: Mind, Body, and Spirit,  
How to Maintain Balance in Life to Stay Healthy**

Dr. Holly Perzy

*Conference Room, Lombardo Student Center*

(Fee required. See page 5 for program description.)

## SCHEDULE

Friday, March 21, 2003

Panel/Paper Presentation H 10:00-11:30 AM

*Murphy Room*

Moderator: Dr. Paul Lauritzen

(H.1) Ethics in Sports: A Philosophic Inquiry in the Value of Sport Philosophy in Daily Life by Dr. Tamba Nlandu, Philosophy

(H.2) Effective Use of Online Discussion Forums by Dr. Marc Lynn, Center for Teaching & Learning

(H.3) Educational Technology, Globalization and the Ethics of Time by Dr. David S. Shutkin, Education & Allied Studies

Panel/Paper Presentation I 10:00-11:30 AM

*O'Dea 2, Lombardo Student Center*

Moderator: Dr. Krystyna Nowak-Fabrykowski

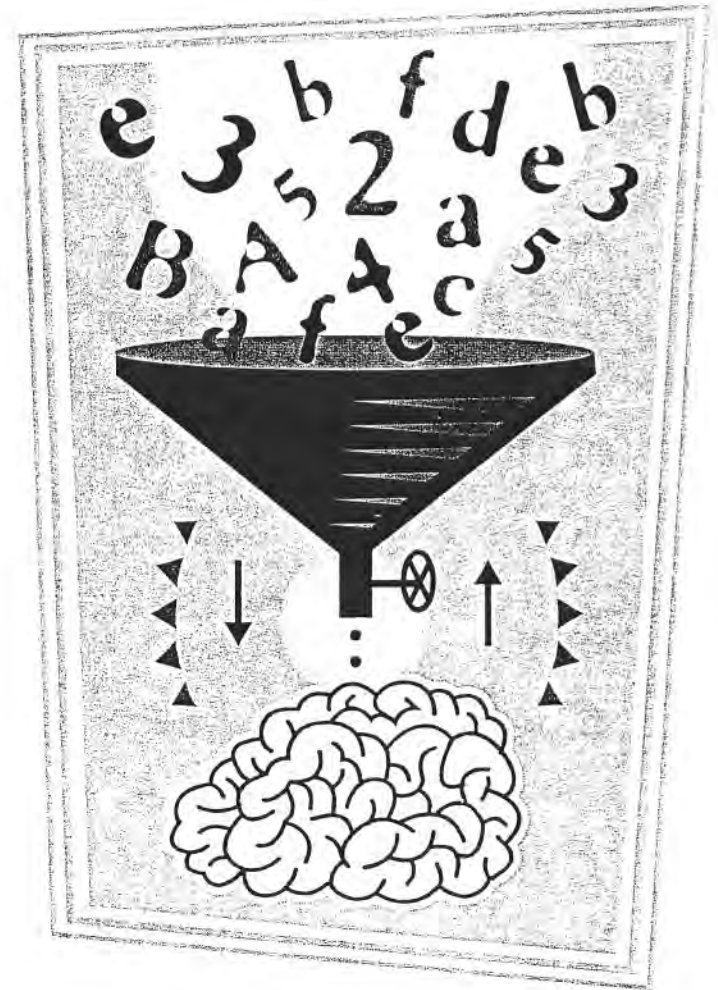
(I.1) Development of Caring with Drs. Nancy Taylor, Mark Storz, Tom Kelly, Lisa Shoaf, Kay Dunlop, and S. Barfaro, Education & Allied Studies

Reception 12:00 PM

For participants of the *Celebration*

*Murphy Room*

Remarks by Dr. David La Guardia, Academic Vice President



## POSTER PRESENTERS

Group 1: Presenting from 3:30–5:00 PM  
Thursday, March 20, 2003  
Atrium, Lombardo Student Center

- (#1) **Measuring and Improving Library Use by Focusing on Course Syllabi**  
Cynthia Lenox, Business Librarian/ Unit Leader for Collection Development & Acquisitions, Grasselli Library
- (#3/4) **The Depression Era Plays of Nancy Kiefer**  
Nancy Kiefer, Instructor, Communications
- (#5) **Dichotomies Unite! Spenser's Syncretic Defense of Poetry**  
Catherine Anson, Graduate Student, English  
Advisor: Dr. Maryclaire Moroney
- (#7) **Institute for Educational Renewal: Creating Learning Communities Dedicated to Continuous Improvement**  
Deborah Zawislan, Program Director, Education & Allied Studies;  
Karen Nestor, Senior Consultant; Marcia LaRiche, Executive Director
- (#9) **Beta Chi: Advocacy Work for Counseling**  
Allison Metz, Pamela Peters, Tara Lemasters, Colleen Winters,  
Graduate Students, Community Counseling
- (#11) **Surface Analysis of Powders**  
Dr. Michael P. Setter, Chemistry
- (#13) **Evaluation of Doan Brook for Metals Contamination and Accumulation using ICP-MS**  
Melissa March, Chemistry Undergraduate; Drs. Michael Setter and Michael Nichols, Chemistry
- (#15) **The Generation of Neuronal Pentraxin 1–Neuronal Pentraxin Receptor Double-Knockout Mice and The Development of Viral Vectors for the Transfection of Hippocampal Neurons with Mutated**

## POSTER PRESENTERS

- Versions of the Synaptotagmin 1 Gene**  
Michael D. Dentler, Psychology Undergraduate; Dr. Mark Perin,  
Lerner Research Institute
- (#17) **The Effects of Speaker Accent and International Exposure on Impression Formation**  
Meghan Preston, Lindsay Marciniak, and Lisa Krall, Psychology Undergraduates
- (#19) **The Physics of Tones Used to Generate Auditory Illusions**  
Dr. Klaus Fritsch, Physics
- (#21) **A Linked Pair of Integer Sequences Implies the Primes Are Infinites**  
Robert Haas, Post-Baccalaureate and Michael Somos
- (#23) **Metal Complexes of HAT-(CN)<sub>6</sub>**  
Jacob Morris, Chemistry Undergraduate;  
Advisor: Dr. Paul Challen, Chemistry
- (#25) **From FrontPage to Dreamweaver: An Odyssey in Web Design**  
Dominic Barone, MBA Graduate Student
- (#27) **Theory of the Four-fold Induced-Torque Anisotropy in Potassium**  
Dr. Graciela Lacueva, Physics
- (#29) **Dynamic Decentralized Task Auctions Mapping Single Agents to Multiple Tasks**  
Jon Murton, Mathematics & Computer Science Undergraduate;  
Advisor: Dr. Daniel Palmer, Mathematics & Computer Science



## POSTER PRESENTERS

Group 2: Presenting from 5:00-6:30 PM  
Thursday, March 20, 2003  
Atrium, Lombardo Student Center

- (#2) **The Influence of Community Services Experiences on Perceptions of Poverty and Homelessness**  
Julie Goldyn, Psychology Undergraduate;  
Advisor: Dr. Nicholas Santilli, Psychology
- (#6) ***Buffy the Vampire Slayer* and Philosophy**  
Dr. Sharon Kaye, Philosophy; Melissa Milavec, English Undergraduate
- (#8) **Determination of Isotopic Exchange in the Copper Isotopomers of Laccase Using ICPMs and IDMs**  
Elena Caraman, Graduate Student, Biology; Lindsey Westerfield, Chemistry Undergraduate  
Advisor: Dr. Catherine Miller, Chemistry
- (#10) **Quantum Mechanical Study of Hydrogen Transfer Reactions of Hydrocarbons with the ONIOM Method**  
David Fatkins and Dr. David Ewing, Chemistry
- (#12) **Lysophosphatidylcholine and 4-hydroxy-2-nonenal-induced vascular smooth muscle cell proliferation mediated by release of FGF-2**  
Tina Choudhri, Undergraduate, Biology; Dr. Yuh-Cherng Chai, Chemistry; Dr. Guy M. Chisolm, Cell Biology, Cleveland Clinic Foundation
- (#14) **Influencing Public Opinion: A Case Study of Issues Management**  
Kevin-Khristian Cosgriff Hernandez, Graduate Student, Communications Management  
Advisors: Drs. Douglas Bruce, Mary Beadle, & Jackie Schmidt, Communications

## POSTER PRESENTERS

- (#16) **The Spectral Function of Composites from Reflectivity Measurements**  
Dr. Anthony Roy Day, Physics; A.R. Grant and Dr. A.J. Sievers, Cornell University; Dr. M.F. Thorpe, Michigan State University
- (#18) **Construction and Analysis of Retroviral Tools for Insertional Mutagenesis**  
Jason Osolin, Research Technician, Biology; Dr. Eugene Kandel, Molecular Biology, Cleveland Clinic Foundation; Dr. James Lissemore, Biology
- (#20) **Ecological Systems Theory Approach**  
Billie J. Gilliam, Graduate Student, Community Counseling
- (#22) **Zora Neale Hurston's *Their Eyes Were Watching God*: Insights from Historical Medicine and Cinema**  
Robert Haas, Post-Baccalaureate
- (#24) **Self-Reported Depression in Patients with Left Versus Right Temporal Lobe Epilepsy Before and After Surgery**  
Maria Noce, Psychology Undergraduate; Dr. Tara Lineweaver, Cleveland Clinic Foundation  
Advisor: Dr. Janet Larsen, Psychology
- (#26) **The Effect of Internet Use on Social and Emotional Connectedness**  
Mark N. Kaplafka, Graduate Student, Community Counseling  
Advisor: Dr. Janet Larsen, Psychology

## POSTER ABSTRACTS

### (#1) Measuring & Improving Library Use By Focusing On Course Syllabi

Cynthia Lenox, Business Librarian

Unit Leader of Collection Development & Acquisitions

As Business Librarian serving the Boler School of Business, my project was aimed developing a communication process for improving library resources and services to support the teaching and learning of business courses. Another goal was to determine whether this analysis of syllabi could serve as a monitoring system the encouragement of library resources. Such a measure would be useful in accreditation reports. I studied the course syllabi to determine the extent to which student students could be aided by outside information in completing assignments, and used a scale of 1 to 5. I then interviewed fourteen Boler School Faculty to determine whether library resources could be added, improved, or made known. Through this process, I was able to identify several additional areas where library information would be valuable. However, when I analyzed syllabi the following semester, I did not find any quantitative or qualitative changes in references to using the library. JCU, Faculty Summer Research Fellowship

### (#2) The Influence of Community Service Experiences on Perceptions of Poverty and Homelessness

Julie Goldyn, Psychology Undergraduate; Advisor: Dr. Nicholas Santilli, Psychology

The purpose of this project is to examine the influence of community service experiences on college students' psychosocial development. In a recent study by Santilli, Falbo, & Harris (2001), service participants showed greater concern for social problems, levels of future civic involvement, and civic attitudes relative to non-service participants. The results from this study provide evidence that service-related experiences positively contribute to psychosocial development. Based on already collected but not analyzed data (Santilli et al., 2001), I examined whether students performing service view social problems such as poverty and homelessness in more thoughtful ways than students not performing service. Student narratives were analyzed using a coding scheme describing depth of understanding of social problems, namely, poverty and homelessness. It is expected that students with community service experiences will show a deeper understanding of these two problems compared to students who have not performed service in the past 12 months.

### (#3/4) The Depression Plays of Nancy Kiefer

Nancy Kiefer, Playwriting and Screenwriting Instructor, Communications

Nancy Kiefer's plays have been widely produced throughout the US, including New York City, Los Angeles, Washington D.C., Memphis, Kansas City, St. Louis and Las Vegas. She is the recipient of 3 national playwriting awards, most recently from the Kennedy Center for her Holocaust play *Radiant Boys*. Many of Kiefer's play focus on the lives of poor Americans during the 1930's, lives complicated and often transformed by the mythological and spiritual forces that surround us. Two of Kiefer's published plays, *The Eighth Order* and *The Illustrated Woman*, tell tales from this fascinating period of American history. Other Depression-era plays featured here are *Head of a Blue-eyed Man* and *Dryope and Iole*.

## POSTER ABSTRACTS

### (#5) Dichotomies Unite! Spenser's Syncretic Defense of Poetry

Catherine Anson, Graduate Student, English; Advisor: Dr. Maryclaire Moroney

Did Edmund Spenser write the *Four Hymnes* in 1596 shortly after the finishing the *Faene Queene*, *Amoretti* and *Epithalamion* to announce his rejection of romantic poetry? Mystery surrounds the work, fermenting with controversy, conspiracy theories, political intrigue, elaborate metaphors, and dichotomies. Alexander Judson states that the hymns "have caused in our time much speculation and comment, and many a page in the scholarly journals would have been saved if Spenser had been a trifle more explicit in the working of his dedication." The piece may have been influenced by Sidney's *Defence of Poesie* and Catholic martyr Robert Southwell's poetry, both published in 1595. I examine the *Four Hymnes* as Spenser's response to political and religious censorship in a defense against antipoetic sentiment.

### (#6) *Buffy the Vampire Slayer* and Philosophy

Melissa Milavec, English Undergraduate; Dr. Sharon Kaye, Philosophy

*Buffy the Vampire Slayer* is a television drama on UPN. It concerns a young woman with supernatural powers whose special calling in life is to protect the world from evil. Using humor, suspense, and the idiom of hip, it explores deep philosophical issues. Open Court is an academic press founded in 1887 that publishes non-fiction for scholars and general readers. Its *Popular Culture and Philosophy* series features the best-selling books *The Simpsons and Philosophy*, *The Matrix and Philosophy*, and *Seinfeld and Philosophy*. Each of these volumes consists of essays by professional philosophers and others analyzing the philosophical implications of popular television shows and movies. Dr. James South, Associate Professor at Marquette University, is the editor of *Buffy the Vampire Slayer and Philosophy*, forthcoming March 2003. JCU undergraduate Melissa Milavec and JCU professor Sharon Kaye co-wrote an article for this volume entitled "Buffy in the Buff: A Slayer's Solution to Aristotle's Love Paradox."

### (#7) Institute for Educational Renewal: Creating Learning Communities Dedicated to Continuous Improvement

Deborah Zawislak, Program Director, Education & Allied Studies; Karen Nestor, Senior Consultant; Marcia LaRiche, Executive Director

Building learning organizations committed to continuous improvement is a critical success factor in both education and business (Senge, 1990, 2000; Dufour and Eaker, 1998; Garmston & Wellman, 1999). Implementation can be challenging and requires sustained commitment and vision. School-wide reform presents significant challenges to the individuals and institutions involved (Evans, 1996; Fullan, 1993). School-based professional development that supports teachers' efforts to analyze their own practice and construct new beliefs and strategies is more likely to be sustained and have a positive impact on student learning in schools in which there is collaboration. (Osterman, 1993; Lieberman, 1995; DuFour, 2001). This poster session presents IER's approach to school-based professional development and coaching. IER uses a constructivist pedagogy linked to a balanced literacy framework to promote continuous improvement in urban schools. IER's approach is designed be catalyst for effective school renewal.

## POSTER ABSTRACTS

### (#8) Determination of Isotopic Exchange in the Copper Isotopomers of Laccase Using ICP-MS and IDMS

Elena Caraman, Graduate Student, Biology; Lindsey Westerfield, Chemistry Undergraduate, Dr. Catherine Miller, Chemistry

Laccase is a member of a class of proteins known as blue copper oxidases, and is responsible for the four-electron reduction of dioxygen to water. The enzyme contains four copper ions, which are found in two distinctively different sites. The blue region is known as the binding site for type one copper, and the trinuclear cluster of copper ions is found at the dioxygen reduction site. This study involves the isolation and purification of *Rhus vernicifera* laccase, as well as the analysis of isotopic exchange between the incubated protein and the bulk copper solution. Previous experiments indicate that when an enriched derivative of laccase was incubated in the presence of a different enriched copper isotope, an exchange of copper occurred. We studied the incubation process under aerobic and anaerobic conditions. We used Inductively Coupled Plasma Mass Spectroscopy to quantitate the isotopic copper ratios in both the incubated proteins and their respective eluents. We also used Isotopic Dilution Mass Spectroscopy in order to measure the total copper in the bulk solution of the protein. Results of the percent copper exchange will be used to optimize, in terms of incubation conditions, the preparation of other isotopically enriched derivatives.

### (#9) Beta Chi: Advocacy Work for Counseling

Allison Metz, Pamela Peters, Tara Lemasters, Colleen Wingers, Graduate Students, Community Counseling

The Beta Chi Chapter of Chi Sigma Iota is dedicated to the advocacy and educational development of individuals in the counseling profession and related fields. The Beta Chi chapter works to present new information, research and resources to counseling professionals and students through the annual Wellness Conference. Additionally Beta Chi, in association with the Chi Sigma Upsilon Chapter at Cleveland State University, has developed the Cleveland Counseling Supervision Consortium. The consortium's purpose is to provide education and support regarding supervision issues to mental health professionals in the greater Cleveland area. The Beta Chi Chapter promotes educational achievement by offering an annual scholarship to an individual that demonstrates excellence in scholarship, professionalism, research, and contribution to the chapter. Beta Chi organizes and sponsors educational and professional enrichment panels, which include the Doctoral panel and the Internship panel.

### (#10) Quantum Mechanical Study of Hydrogen Transfer Reactions of Hydrocarbons with the ONIOM Method

David G. Fatkins and Dr. David W. Ewing, Chemistry

Four hydrogen transfer reactions involving ethane and propane were examined using the ONIOM method:  $C_2H_6 + CH_3 \parallel C_2H_5 + CH_4$ ,  $C_3H_8 + H \parallel C_3H_7 + H_2$  ( $2^\circ$  hydrogen transfer), and  $C_3H_8 + CH_3 \parallel C_3H_7 + CH_4$  ( $1^\circ$  &  $2^\circ$ ). The kinetic parameters of these reactions are important to understanding the combustion and processing of natural gas and petroleum. The activation energies for each reaction were calculated and compared to other *ab initio* calculations and experimental data. The other *ab initio* quantum chemical methods used unrestricted Hartree-Fock theory and second and fourth-order many-body perturbation the-

## POSTER ABSTRACTS

ory. DZP and pVTZ basis sets were used in the calculations. The spin contamination of the doublet wavefunctions was corrected for. The activation energies obtained using the ONIOM method were predicated to within 0.5-4.4 kcal/mol of the experimental values of the reactions studied. Summer 2002, National Science Foundation Research Experiences for Undergraduate Program.

### (#11) Surface Analysis of Powders

Dr. Michael P. Setter, Chemistry

The research presents the state of the art in developing new techniques to quantify the compositional differences between the surface and the interior of powders using common instrumentation. The focus is on transition metal oxide powders. In each technique, the powder is placed into a particular solution. The solution then slowly dissolves successive layers of the individual particles over time. Analysis of the resulting solution reveals the composition of the powder during the dissolution. The analysis of the solutions has been performed using three separate techniques: High Performance Liquid Chromatography (HPLC), Atomic Absorption Spectroscopy (AA), and Differential Pulse Anodic Stripping Voltammetry (DPASV). While different, each technique has yielded similar information about the nature of dissolution. This work has been supported by the Chemistry Department at JCU, the NSF Research Experience for Undergraduates program, the John Huntington Foundation, and a Summer Faculty Research Fellowship from the Graduate School at JCU.

### (#12) Lysophosphatidylcholine and 4-hydroxy-2-nonenal-induced vascular smooth muscle cell proliferation mediated by release of FGF2

Tina Choudhri, Biology Undergraduate; Dr. Yuh-Cherng Chai, Chemistry; Dr. Guy M. Chisolm, Cell Biology, Cleveland Clinic Foundation

Plasma levels of low-density lipoprotein (LDL), one of the molecular complexes that transports cholesterol and other lipids, are known to correlate with atherosclerosis. Oxidized forms of LDL accumulate in arterial lesions of atherosclerosis and are believed to promote lesion development. One feature of growing lesions is the proliferation of smooth muscle cells (SMC). 1-palmitoyl lysophosphatidylcholine (lysoPC), produced during the oxidation of LDL, contributes the majority of the proliferative response of SMCs to oxidized LDL. This mechanism involves lysoPC-induced oxidant stress and the release of a potent SMC growth factor, fibroblast growth factor-2 (FGF-2). Using rabbit SMC, we investigated further this effect of lysoPC and also sought to determine if 4-hydroxy-2-nonenal (HNE), another product of LDL oxidation, induced similar effects. It was found that increasing concentrations of lysoPC induced the release of FGF-2 and a proliferative response. HNE also induced the release of FGF-2. We have also begun to explore the effects of lysoPC related to the FGF-2 release and SMC proliferation. Our hypothesis is that lysoPC activates NAD(P)H oxidase, which produces excess superoxide anion. This, in turn, leads to oxidative injury, FGF-2 release and autocrine proliferation. We are using pharmacologic inhibitors of NAD(P)H oxidase as well as SMC from wildtype mice and mice deficient in the gene for p47phox, an essential protein component of the active NAD(P)H oxidase complex. If this phenomenon contributes to SMC proliferation in atherosclerosis, therapies may be specifically targeted to limit lesion growth. Summer 2002 JCU-CCF Internship Program.



## POSTER ABSTRACTS

### (#13) Evaluation of Doan Brook for Metals Contamination and Accumulation Using ICP-MS

Melissa March, Chemistry Undergraduate

Contamination and pollution of urban streams, such as Doan Brook in Shaker Heights, come from sources like sanitary sewage, landfills, and road runoff. Substances like metals can collect in such water systems and make their way into the aquatic food chain. This study attempted to determine the extent of the uptake and accumulation of several metals in Doan Brook fish, and whether or not these metals were being taken up by the fish from their food source or from their watery environment. Water and fish samples were collected from Doan Brook for 6 months, beginning in April of 2002 and ending in September. These samples were analyzed for the presence of metals using inductively coupled plasma mass spectroscopy (ICP-MS). This study has shown that the fish of Doan Brook are indeed collecting metals from both their food sources and the water around them, but that only some of these metals are actually exhibiting accumulation.

### (#14) Influencing Public Opinion: A Case Study of Issues Management

Kevin-Christian Cosgriff Hernandez, Graduate Student, Communications Management; Advisors: Drs. Douglas Bruce, Mary Beadle, & Jackie Schmidt, Communications

This poster presentation explores the field of issues management as it pertains to communications. Since the 1970's issues management has grown as a field of research in communications and other disciplines. By looking at this topic from a communications perspective and applying these concepts to a local issues campaign we will gain more understanding of the communications strategies, tactics and roles that are present in this approach.

### (#15) The Generation of Neuronal Pentraxin 1 - Neuronal Pentraxin Receptor Double-Knockout Mice and The Development of Viral Vectors for the Transfection of Hippocampal Neurons with Mutated Versions of the Synaptotagmin 1 Gene

Michael D. Dentler, Psychology Undergraduate; Dr. Mark Perin, Department of Neuroscience, The Leiner Research Institute

A. The Neuronal Pentraxins (Neuronal Pentraxin 1, Neuronal Pentraxin 2, and Neuronal Pentraxin Receptor) make up a family of proteins found in neurons. Based upon their homology to other members of the pentraxin family, which play a role in the immune response, it is believed that the neuronal pentraxins are involved in the removal of cellular debris during the process of synaptic formation and restructuring. The goal of the current research is to generate a line of Neuronal Pentraxin 1 - Neuronal Pentraxin Receptor double-knockout mice. It is believed that an absence of these neuronal pentraxins will result in abnormalities in the processes of synaptic formation and restructuring. Currently, several double-knockout pups have been generated, but work continues to generate a pure breeding line. The double-knockout mouse pups will be examined closely for abnormalities in growth, reproduction, and behavior. Additionally, the brains of these mice will be examined for abnormalities in morphology and synaptic formation, development, and plasticity. Later research will involve the use of these double-knockouts for the generation of mice lacking Neuronal Pentraxin 1, Neuronal Pentraxin 2, and Neuronal Pentraxin Receptor.

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B. Synaptotagmin is a synaptic vesicle protein involved in the release of neurotransmitters. The goal of the current research is to generate viral vectors, based upon the Semliki Forest Virus, that can be used for the transfection of mouse hippocampal neurons with various forms of the synaptotagmin 1 protein, possessing mutations in the carboxy terminus. To date, four versions of the mutated synaptotagmin insert have been successfully placed in the Semliki Forest Virus plasmid. The recombinant plasmid will be used for the construction of nonreplicative recombinant Semliki Forest Virus, which may improve the success of transfection. The end goal is the development of a transfection system that will enable the expression of the mutated synaptotagmin protein in the hippocampal neurons. The neurons will be examined for the distribution of the mutated synaptotagmin protein during the processes of neurotransmitter release and reuptake. This work was conducted through the John Carroll University - Cleveland Clinic Foundation Summer Research Program.

### (#16) The Spectral Function of Composites from Reflectivity Measurements

Anthony Roy Day, Professor, Physics; A. R. Grant and Professor A. J. Sievers, Cornell University; Professor M. F. Thorpe, Michigan State University

The effective dielectric function of a composite depends on the geometry of the composite and the dielectric functions of the constituent materials. In the Bergman-Milton representation all the relevant geometric information can be captured in a spectral function which is independent of the material properties. Extracting the spectral function from experimental data is a challenging inverse problem but we show that known constraints on the spectral function and the correct choice of the experimental system make it tractable. We present spectral functions determined from reflectivity measurements for a series of diamond/KCl composites. We discuss the choice of this experimental system, limits on the accuracy with which the spectral function can be determined, and geometric information about the composite that can be obtained from the spectral function. Finally, we use the spectral function of the KCl/diamond composites to successfully predict the dielectric response of isostructural RbCl/diamond composites. This work was supported by NSF Grants No. DMR-97-04099 and No. DMR-9979483 and by NASA Grant No. NAG5-4504.

### (#17) The Effects of Speaker Accent and Intentional Exposure on Impression Formation

Meghan Preston, Lindsay Marciniak, Lisa Krall, Psychology Undergraduates

Previous research by Fuertes, Potere, and Ramirez (2002) indicated that a speaker's accent influenced how others perceive their character. Merkwant and Smith (1999) theorized that as contact between people of different cultures increases, so does acceptance between cultures. In this study, participants listened to a recording of one of four accented speakers: American, British, Chinese, and Lebanese. A questionnaire indicated participants' international exposure and their rating of speaker intelligence. No significant differences were found between types of accent ( $p = .263$ ) or international exposure ( $p = .201$ ). There was no interaction between accent and international exposure ( $p = .617$ ). One potential confound was the lack of context in which to judge the speaker.



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### (#18) Construction and Analysis of Retroviral Tools for Insertional Mutagenesis

Jason Osolin, Research Technician, Biology; Dr. James Lissemore, Biology; Dr. Eugene Kandel, Molecular Biology, Cleveland Clinic Foundation

A study of a series of retroviral vectors was undertaken to develop and verify novel retroviral tools for insertional mutagenesis. The final construct is intended to deliver a regulated promoter (RP) randomly throughout the genome, leading to up-regulation or down-regulation of genes at the integration sites via dominant mechanisms. Subsequently, the mutant phenotype of the infected cells could be correlated with the function of the RP and, hence, with the insertion event. Development of such a tool should solve the present problems of using insertional mutagenesis in diploid mammalian cells. In this study, a retroviral vector was constructed, and the functionality of its individual components was tested using GFP (Green Fluorescent Protein) as a reporter. From analysis of the function of the components of this construct, we verified that the construct is removable through site-specific recombination, the LTRs were successfully modified not to interfere with the RP, up to 40-fold induction of RP is achievable, and the integration sites of the constructs were readily mapped in the human genome. To conclude, we were able to construct a retroviral vector that had completely functional components.

### (#19) The Physics of Tones Used to Generate Auditory Illusions

Dr. Klaus Fritsch, Physics

Special computer-generated complex tones make the judgment of relative pitch difficult and, often, impossible. It has long been known that certain sequences of such tones may appear to ascend or descend indefinitely or repeat periodically, depending on the particular sequence of tones chosen. When the acoustic amplitude of the tone versus time is plotted for a sequence of tones on a three-dimensional plot, visual illusions are produced which are quite similar to the auditory illusions.

### (#20) Ecological Systems Theory Approach

Billie Gilliam, Graduate Student, Community Counseling

The plight of American girls who kill or abandon their babies is devastating. They are portrayed as evil, selfish individuals with a complete disregard for human life. Kubler-Ross generated a stage model, the process of death from denial to accepting. Bronfenbrenner's Ecological Systems Theory attempts to show correlates with the entire life system and life events. A new application of Kubler-Ross stages of death and dying shed light on the causes of infanticide and baby abandonment. Using Bronfenbrenner's Ecological Systems theory forces others to examine their possible role in this present-day tragedy. This new application of both models work concurrently to explain the fight or flight responses that result in these tragedies.

### (#21) A Linked Pair of Integer Sequences Implies the Primes Are Infinite

Michael Somos and Robert Haas, Postbaccalaureate Student

The prime numbers 2,3,5,7,11,... are the fundamental building blocks in the beautiful branch of mathematics called number theory. Primes are the simplest numbers—since they cannot be broken into products of smaller ones—and also the most basic—since any other num-

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ber can be written as a product of primes (e.g.  $6 = 2 \cdot 3$ ). A famous old result, dating at least back to the geometer Euclid, is that there are infinitely many primes. We describe here our new proof of this fact (*American Mathematical Monthly*, in press). We consider the pair of sequences

$$\begin{aligned} a_n &: 0 & 1 & 2 & 3 & 5 & 13 & 49 & 529 & 21121 & \dots \\ b_n &: 1 & 1 & 1 & 2 & 3 & 10 & 39 & 490 & 20631 & \dots \end{aligned}$$

satisfying the linked recurrences  $b_{i+1} = a_i b_i$  and  $a_{i+1} = b_{i+1} + b_i$ , and show that no two  $a_i$ s have a common prime factor. (Proof: Represent the  $b_i$ s as  $1, 1, a_1, a_2, a_1 a_3, a_2 a_4, a_1 a_3 a_5, a_2 a_4 a_6, a_1 a_3 a_5 a_7, \dots$ , whence  $a_{2n} = a_2 a_4 \dots a_{2n-2} + a_1 a_3 \dots a_{2n-1}$  and  $a_{2n+1} = a_1 a_3 \dots a_{2n-1} + a_2 a_4 \dots a_{2n}$ , then argue by induction.) Since each  $a_i$  thus has at least one new prime factor, the infinite sequence of  $a_i$ s has infinitely many.

### (#22) Zora Neale Hurston's *Their Eyes Were Watching God*: Insights from Historical Medicine and Cinema

Robert Haas, Postbaccalaureate Student

Hurston's 1937 novel is a landmark in black and feminist literature, tracing her heroine Janie's liberation over the course of three marriages. Janie's third husband dies melodramatically of rabies caught defending her from a mad dog, biting Janie himself as he dies. Rabies being greatly feared and misunderstood in the 1930's, I conclude (*Literature and Medicine* 19:2 (2000) 205-228) that Hurston intends Janie herself thereby also to be potentially infected. To Janie's lyrical homecoming—"Ah'm satisfied tuh be heah"—this adds poignancy, depth, and courage, making her a yet more wonderful heroine. But where did the rabies idea itself originate? Analyzing content, quality, attendance, timing, and author background and intent, I suggest (*Literature/Film Quarterly*, in press) it was the famous 1936 film "The Story of Louis Pasteur" (Academy Award to Paul Muni). An interdisciplinary viewpoint—"integration scholarship" combining science, medicine, history, biography, cinema, and literature—thus enhances appreciation of Hurston's work.

### (#23) Metal Complexes of HAT-(CN)<sub>6</sub>

Jacob Morris, Chemistry Undergraduate; Advisor: Dr. Paul Challen, Chemistry

The combination of redox-active organic fragments with paramagnetic transitional metals in molecular structures with controlled architecture represents an exciting new addition to the field of materials chemistry. These compounds have the potential to be used in a wide range of scientific and commercial applications. The synthesis of complexes of HAT-(CN)<sub>6</sub> with redox-active and magnetically active metals was investigated. HAT-(CN)<sub>6</sub> is a cyanoazacarbon that has four reversible reduction steps. It is a moderately strong electron-acceptor that can function as a multidentate bridging ligand through three pairs of phenanthroline-like nitrogen donors. HAT-(CN)<sub>6</sub> was combined with compounds of Nickel and Manganese in order to form complexes that were studied using a range of spectroscopic and analytical techniques including IR spectroscopy, UV-VIS spectroscopy, and pending formation of crystals, X-ray crystallography. *Ab initio* calculations were also performed on the neutral, mono-, and dianion HAT-(CN)<sub>6</sub> molecules to calculate structures and total electronic energies.

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### (#24) Self-Reported Depression in Patients with Left Versus Right Temporal Lobe Epilepsy Before and After Surgical Intervention

Maria S. Noce, Psychology Undergraduate; Dr. Tara T. Lineweaver, The Cleveland Clinic Foundation & Dr. Janet D. Larsen, Psychology

Previous research examining theories of emotional lateralization of the brain and the effects of anterior temporal lobectomy (ATL) on the post-operative emotional outcome of temporal lobe epilepsy (TLE) patients has conflicted. This study sought to determine possible lateral differences in depression in TLE patients pre-operatively, the possible change in depression post-operatively for left versus right TLE patients, as well as the effect of other variables that may mediate a possible change in depression post-operatively. Research was conducted on 111 patients with medical refractory TLE who underwent ATL. Data was collected during neuropsychological assessments with a self-report measure. Analyses of the data revealed no significant difference between left versus right TLE patients pre-operatively. Depression scores were significantly lower post-operatively; however, side of surgery did not mediate this change. No other variables were found that significantly impacted the change in mood. Implications of this research include lack of support for theories of lateralization of emotion in TLE patients as well as implying a need to determine what factors influence post-operative emotional outcome.

### (#25) From FrontPage to Dreamweaver: An Odyssey in Web Design

Dominic Barone, MBA Graduate Student

As a Graduate Assistant serving The Graduate School, my project was aimed at developing a functional, yet attractive Website that would aid in increasing enrollment. Through the use of Macromedia Dreamweaver and Adobe Photoshop, I have advanced this website from its previous program of Microsoft FrontPage. Much of the layout was created in Photoshop and then transferred to Dreamweaver and saved as an html file, so that it was coded for the web. With help from the F.T.I.C. and Tom Phillips, the website was transformed from the simple design of FrontPage to the professional look and feel of Dreamweaver.

### (#26) The Effect of Internet Use on Social and Emotional Connectedness

Mark Kaplafka, Graduate Student, Community Counseling;

Advisor: Dr. Janet Larsen, Psychology

Previous research has suggested that excessive use of the Internet and computers affects aspects of an individual socially as well as emotionally. This present study examines the size and type of an individual's social network, and whether use of the Internet and computer can predict an individual's level of social/emotional isolation as well as their level of social anxiety. These variables were examined using a series of questionnaires. Results of this study show that there is a positive correlation between time spent on the Internet and time spent on Instant Messenger, also the more time spent on Instant Messenger, the larger an individual's social network. It was also found that individuals tended to feel more socially isolated when more time was spent on the Internet and in turn higher levels of social isolation were also associated with higher levels of social anxiety.

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### (#27) Theory of the Four-fold Induced-torque Anisotropy in Potassium

Dr. Graciela Lacueva, Physics; Dr. Albert W. Overhauser, Physics, Purdue University.

Induced-torque anisotropies observed in single-crystal spheres of potassium prove that the Fermi surface is multiply connected. Cyclotron orbits which intersect heterodyne gaps created by the charge-density-wave broken symmetry lead to an anisotropic Hall effect having longitudinal components. Thereby the theoretical induced torque (in a 360° magnet rotation) has four evenly spaced minima and four maxima with a staggered spacing. The maxima grow almost as the square of the field and can be 30 times higher than the minima. All such features have been observed. (Details depend on crystal growth and orientation.) All are impossible in a spherical crystal with a simply connected Fermi surface.

### (#28) Automatic Generation of Swarm Control Programs Using Genetic Algorithms

Kelly Zajac, Mathematics & Computer Science Undergraduate;

Advisor: Dr. Daniel Palmer, Mathematics & Computer Science

Genetic algorithms take a randomly generated population of programs, evaluates the ability of each to solve a given problem, and then "crossbreeds" the fittest ones to produce even fitter "offspring". We apply this concept to the problem of self-dispersing a swarm of agents to a uniform density. By altering a traditional (non-swarm) genetic algorithm, we developed two solutions to this problem. We partitioned a region into  $n$  equal areas and counted the agents in each. When the population in all regions are  $1/n^{\text{th}}$  the entire population, the swarm has sufficiently dispersed. With fixed areas, overall uniform density can still contain dense clusters of agents spanning adjacent regions. To remedy this, we created a second approach in which we partition the space into dynamically generated random regions and apply the ratio test. This eliminates our earlier problems associated with boundaries. Our research shows the viability of applying genetic algorithms to swarms. Funding: Wright-Patterson Air Force Base / Orbital Research, Inc.

### (#29) Dynamic Decentralized Task Auctions Mapping Single Agents to Multiple Tasks

Jon Murton, Mathematics and Computer Science Undergraduate

Advisor: Dr. Daniel W. Palmer, Mathematics and Computer Science Department

When multiple autonomous agents must perform a collection of tasks, finding a low-cost mapping of agents to tasks is important. Fast, deterministic algorithms exist to find these mappings, but they are inflexible or require a centralized execution. In dynamic situations, a decentralized approach is necessary. The Cooperative Auction of Swarm Tasks (CAST) Algorithm was developed to address this problem. We explored several variations of mapping multiple targets to individual agents, including: simply letting agents bid more than once; allowing a single agent to perform all tasks in a localized region, and having agents recuse themselves from participation. This research enumerates, evaluates, and compares several of these alternate approaches. We demonstrate that these hybrid approaches produce even lower cost results. A realistic algorithm for the optimal solution is not known, so we cannot compare our auction to best case results, but we demonstrate statistically significant improvements over centralized and static approaches. Funding: Picatinny Arsenal / Orbital Research, Inc.

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### (A.1) Signs of Resiliency and Risk for Urban Elementary Students

Dr. John L. Rausch, Education and Allied Studies

This study was designed to investigate the phenomenon of resiliency among urban elementary school students in an at-risk environment. In contrast with previous studies narrowly focused upon the identification of risk factors, this study utilized a phenomenological qualitative approach to investigate indicators of resiliency from both individual and contextual perspectives. The narrative descriptions of 25 elementary school students in an at-risk environment were analyzed. The results indicated that the participants had strong individual and contextual resiliency indicators through the fifth grade despite being educated in a school district with a 60% drop-out rate before high school graduation. This study was supported by a Summer Research Fellowship from John Carroll University.

### (A.2) Science & Religion: Promoting a Dialog

Dr. Andrew Trew, Religious Studies; Fr. Howard J. Gray, Assistant to the President for Mission & Identity; Dr. James Lissemore, Biology

How far can science answer questions about the meaning and purpose of life? What is the impact on faith of the power of science to create life in a test tube, clone animals and evolve new species in our own life time? This panel presentation focuses on the relationship of science and religion. Father Gray will focus on a Jesuit perspective of the impact of science on faith and ways of looking at the relationship of science and spirituality. Andrew Trew will use video clips from his Tuohy lecture series and materials from his Templeton Award winning course (RL290) "Religion in an Age of Science" as the basis of case studies on evolution, creation and spirituality in medicine. Dr. Jim Lissemore will address areas in biology and genetics which highlight questions about faith, ethics and science.

### (A.3) Edna And Addie - Victims of the Conventions of Motherhood

Hong Zenisek, English Undergraduate

Literary reviewers and readers often regard Edna Pontillier of Kate Chopin's novel *The Awakening*, and Addie Bundren of William Faulkner's novel *As I Lay Dying* as unconventional mothers. But careful reading of these works convinced me that they are only realistic mothers, who are victimized by the old social conventions of motherhood. It is those conventions that are unnatural and unreal. Both Edna and Addie break some rules of these conventions. But the conventions are so deep-seated in society that both of them are bound by it. We can see from Edna and Addie's tragedies that the conventions of motherhood defined for women are truly against women and devastating to family life, even to the men, the assumed oppressors in the two novels.

### (B.1) The Process of Participation in the Deloitte and Touche Tax Challenge

Aaron Carino, Jeff Cook, Matt Lower, and Ron Ricca, Undergraduates;

Gerald Weinstein, Ph.D., CPA, Faculty Moderator, Department of Accountancy

The Deloitte and Touche Tax Challenge is the successor to the Andersen Tax Challenge, the most prestigious intercollegiate competition in the academic accounting realm. Over 60 undergraduate and graduate teams participated in 2002. A regional competition is held in October and the six teams in each division (undergraduate and graduate) judged to have prepared the best solution are invited to attend the national competition in November, held

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in Orlando, Florida. JCU has fielded an undergraduate team in each of the eleven years the competition has been held. In five of those years (1992, 1993, 1994, 2000 and 2001), our team made it to the national finals. The presentation for the *Celebration of Scholarship* will employ members of JCU's 2002 Challenge team. They will discuss the process of selecting the team, the preparation that is involved in becoming ready for the regional tourney, and the competition itself.

### (B.2) A Linked Pair of Integer Sequences Implies the Primes Are Infinite

Michael Somos and Robert Haas, Postbaccalaureate Student

The prime numbers 2,3,5,7,11,... are the fundamental building blocks in the beautiful branch of mathematics called number theory. Primes are the simplest numbers—since they cannot be broken into products of smaller ones—and also the most basic—since any other number can be written as a product of primes (e.g.  $6 = 2 \cdot 3$ ). A famous old result, dating at least back to the geometer Euclid, is that there are infinitely many primes. We describe here our new proof of this fact (*American Mathematical Monthly*, in press). We consider the pair of sequences

$$a_i: 0 \quad 1 \quad 2 \quad 3 \quad 5 \quad 13 \quad 49 \quad 529 \quad 21121 \dots$$

$$b_i: 1 \quad 1 \quad 1 \quad 2 \quad 3 \quad 10 \quad 39 \quad 490 \quad 20631 \dots$$

satisfying the linked recurrences  $b_{i+1} = a_i b_i$  and  $a_{i+1} = b_{i+1} + b_i$ , and show that no two  $a_i$ s have a common prime factor. (Proof: Represent the  $b_i$ s as  $1, 1, a_1, a_2, a_1 a_3, a_2 a_4, a_1 a_3 a_5, a_2 a_4 a_6, a_1 a_3 a_5 a_7, \dots$ , whence  $a_{2n} = a_2 a_4 \dots a_{2n,2} + a_1 a_3 \dots a_{2n,1}$  and  $a_{2n+1} = a_1 a_3 \dots a_{2n,1} + a_2 a_4 \dots a_{2n,2}$ , then argue by induction.) Since each  $a_i$  thus has at least one new prime factor, the infinite sequence of  $a_i$ s has infinitely many.

### (B.3) Middle School Interest & Literacy Survey

Margaret Sweeny, Education Undergraduate; Dr. Cathy Rosemary, Education

The purpose of this investigation was to gain information about the reading interests of young adolescents. Two surveys were administered for this project, one to middle school students in grades six through eight and one to their teachers. The student survey included questions ranging from pop culture to reading preferences/interests to motivation to read. The teacher survey dealt with demographics of the class and the teachers' insights on their students. The surveys were administered in eight schools in greater Cincinnati to a total of 8 teachers and 160 students. Overall, the findings showed that over 50% of the students had positive attitudes toward reading, finding it "pretty cool" or "totally awesome." The most interesting finding was the students input on reading activities and their advice for upcoming teachers. The findings will be used to help create a productive classroom based on the students' interests.



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### (B.4) Fuimos a Machu Picchu, Perú: Incorporating Culture into Written Spanish at the 100 Level

Dr. Douglas A. Jackson, Visiting Professor of Spanish, Department of Classical and Modern Languages and Cultures; and Dr. Christine Scott, Visiting Professor of Spanish, Department of Classical and Modern Languages and Cultures

A common question among teachers of Spanish is "How can I include culturally relevant materials into my lesson plan while still covering the necessary grammar for each chapter?" With time constraints and only three hours per week, many instructors omit culture from their classes because there isn't time to cover it. This lesson plan demonstrates how to use minimal class time for the inclusion of culture into the writing component of the course while still focusing on the usage of past tenses in Spanish. Students take an imaginary journey to the lost Inca city of Machu Picchu and write a fictional description of the trip. They must use 10 examples of regular preterit, 10 examples of 10 irregular preterit, 5 examples of present simple and 15 culturally appropriate words from the vocabulary lists from the text and additional readings.

### (C.1) Harlem Renaissance: Multidisciplinary, Multi-Media Educational Resource

Dr. Marc Lynn, Dr. Tamba Nlandu, Elizabeth Stiles, Dr. Hélène Sanko, Dr. Val Lassiter, Patricia Dawson, Dr. Shirley Seaton

To address John Carroll University's mission to create a greater focus on diversity in the curriculum, an interdisciplinary Internet resource was designed, the outcome of a collaborative effort between the Office of Multicultural Affairs, the Center for Teaching & Learning, and the Faculty Technology Innovation Center with faculty from various departments. The strength of this project is the exploration of the African-American experience through multiple disciplines and web-based, multi-media technologies. Pedagogical emphasis was placed on interconnected links between disciplines focusing on time-period, social movement, art, and artist. The content area focuses on artists, musicians, scholars, and social/political movements of the Harlem Renaissance during the decades following WWI.

### (D.1) Intellectual and Ethical Development: A Journey to Tolerance

Dr. John H. Yost, Psychology

In this newly developed course, students will examine intellectual and ethical development in a liberal arts environment. The implications for intellectual and ethical development during the college years will be addressed in terms of the social-cognitive process involved in the use of stereotypes, prejudice and discrimination, and intolerance. The goal of the course is to provide students with a greater understanding of the cognitive changes that occur in a liberal arts environment and to make them aware of the social-cognitive processes underlying stereotypes, prejudice, and intolerance. An anticipated result is that students will be better able to "make sense" of the changes that have occurred to their thought processes in a liberal arts environment and apply this understanding to an increased appreciation and embracing of diversity, as well as, becoming a more tolerant citizen. The development of this course was generously supported by a 2002 Summer Ethics Course Development Fellowship.

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### (D.2) Viewer Responses to September 11

Dr. Margaret Finucane, Communications

We attend to television for many different reasons. Previous research has shown viewers have strong interest in disaster stories; media dependency increases in times of disaster, and people exhibit different responses to reports of disaster. We were interested in studying people's responses to the televised reports of the events of September 11. We surveyed 251 people within one week of September 11 regarding their media use on September 11, the effect of the media reports on the participant's interpersonal responses, and emotional responses to the reports. Content analysis of the responses indicated four general story features were associated with people's emotional involvement: the actual crash/collapse, the magnitude of the devastation, empathic responses, and security violation. With regard to the interpersonal nature of shared viewing, people reported coveiwng with people in close proximity, for a tension release, to feel more secure, and to reinforce the reality of the events. Co-Authors: Horvath, Cary W., & Step, M. M. Assistant Professor, Department of Communication (affiliation: Slippery Rock University Department of Communication; Case Western Reserve University, Department of Communication Disorders).

### (D.3) Organoaluminum Reagents in Vinylsilane Synthesis

Megan Macala and Nicholas James, Undergraduate Research Assistants, Chemistry; Dr. Desmond Kwan, Chemistry

Vinylsilanes, versatile synthetic intermediates, play a prominent role in many natural and unnatural product syntheses (eg. antibiotics, pheromones, and terpenes). The goal of this research project is to convert various ketones to their corresponding vinylsilanes and compare the selectivity of a polar solvent to a non-polar solvent. Our approach is based primarily on the Peterson olefination reaction. The Peterson olefination converts aldehydes and ketones to desilylated alkenes under either acidic or basic conditions. Our research and Mole's work demonstrates that organoaluminum reagents are potent eliminating agents. We explored diethylaluminum chloride's reaction with  $\beta$ -silylalkoxides, generated in situ from the addition of (trimethylsilylmethyl) lithium to various ketones, in triethylamine (polar) and in pentane (non-polar) solvents, in a one pot synthesis.

### (D.4) Green Chemistry: An environmental friendly way to do chemistry

Dr. M.L. Desmond Kwan, Chemistry

Chemistry has enhanced the quality of our lives. However, it also has been linked to numerous environmental problems. To help preserve our planet, the Green Chemistry Institute (GCI), a non-profit organization, was founded in 1997. The institute promotes green chemistry, environmentally benign chemistry, through education, information dissemination, etc. Working across disciplines and academic, government and industry sectors, GCI advocates the development and implementation of science and technology to avoid/reduce the generation and production of hazardous wastes. To introduce this noble science frontier to our students, we have incorporated "Green Chemistry" in my Organic chemistry curriculum since the fall of 2001. Our goals are to educate our students to become "Green Ambassadors" and to disseminate the idea of environmental awareness to our community.



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### (E.1) Zora Neale Hurston's *Their Eyes Were Watching God*: Insights from Historical Medicine and Cinema

Robert Haas, Postbaccalaureate Student

Hurston's 1937 novel is a landmark in black and feminist literature, tracing her heroine Janie's liberation over the course of three marriages. Janie's third husband dies melodramatically of rabies caught defending her from a mad dog, biting Janie himself as he dies. Rabies being greatly feared and misunderstood in the 1930's, I conclude (*Literature and Medicine* 19:2 (2000) 205-228) that Hurston intends Janie herself thereby also to be potentially infected. To Janie's lyrical homecoming - "Ah'm satisfied tuh be heah" - this adds poignancy, depth, and courage, making her a yet more wonderful heroine. But where did the rabies idea itself originate? Analyzing content, quality, attendance, timing, and author background and intent, I suggest (*Literature/Film Quarterly*, in press) it was the famous 1936 film "The Story of Louis Pasteur" (Academy Award to Paul Muni). An interdisciplinary viewpoint - "integration scholarship" combining science, medicine, history, biography, cinema, and literature - thus enhances appreciation of Hurston's work.

### (E.2) Making an Early Christian Text

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

How were the earliest Christian books made, and what did they look like? This project will explore the materials and methods of circa first-century book production, which included the use of papyrus and parchment, and provided the context for the transition from the scroll to the codex. The project will also examine Classical literary and Christian cultures to determine how they shaped the form and appearance of early texts. The goal of the project is to create a facsimile of an actual Pauline epistle that looks very much like a text that could have circulated in ancient times.

### (E.3) The Scholarly Communication System: Market Dysfunction and What is Being Done about It

Ruth E. Fenske, Ph.D., Head, Reference Unit and Librarian, Grasselli Library, and other Grasselli Library faculty

Quoting from a Scholarly Publishing and Academic Resources Coalition (SPARC) white-paper: During the past decade, the debate about how to transform scholarly publishing has animated discussion around the globe. The problem is clear: Scholarly journals cost too much. But though a variety of solutions [has] been proffered, none has yet been so widely embraced that the underlying structures have shifted appreciably. Grasselli library faculty will describe market dysfunctions in the scholarly communication system and present proposed solutions, with an emphasis on solutions which affect small universities and OhioLINK initiatives.

### (E.4) A Leadership Study Of The Five Districts Who Have Demonstrated The Most Improvement On Ohio's Report Card

Dr. Lisa M. Shoaf, Education & Allied Studies; Brian Sinchak, M.Ed.

This study identified the five school districts in Ohio that experienced the highest achievement gains on the Ohio School District Report Card, and described the factors associated

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with the gains. Specifically examined were the leadership practices of each district's administrative team, the strategies used in the districts for improvement, and the elements of the Continuous Improvement Plan. Data also included information from Kouzes and Posner's Leadership Practice Inventory, standardized open-ended interviews, and document analysis such as Continuous Improvement Plans, staff development plans and various Education Management Information System data. Results of this study will be discussed as well as their implications for the field of educational leadership.

### (F.1) Freedom of Zimbabwe's Press: Is It Truly Free?

Elizabeth Orr, Communications Undergraduate

Zimbabwe is a relatively new democracy. By definition, this implies that there should exist a free and independent press in Zimbabwe; however, this is not the case. Under the dictatorial leadership of President Robert Mugabe, the independent press, that which is not controlled by the ZANU-PF government, is struggling to stay alive. The government does everything in its power to stifle the independent media, and this presents ethical problems. A major ethical theory in the media is communitarianism, which focuses on what is best for the community. This paper explores communitarianism as a theory as examines Mugabe and the Zimbabwean government's violation of it.

### (F.2) Reporting from the Front Lines

Katarina Brkic, Communications Undergraduate

In search of the truth, journalists place themselves in danger as they bravely venture to war torn areas. International humanitarian law is meant to provide a sufficient protection for journalists but the fact is that their safety is not always guaranteed. This brings in the question; is it ethical for media management to send their journalists into war zones? In relation to the question, my paper examines the motive, safety and rights of journalists during a time of war. Furthermore, the paper focuses on the journalist's role as an informant, which brings in the aspect of reporting under utilitarian ethics. This is accomplished by concentrating specifically on journalist action, during the war in the former Yugoslavia.

### (F.3) Al Jazeera: CNN of the Arab World

Kathryn Ferguson, Communications Undergraduate; Advisor: Sister May Ann Flannery

Often referred to as the CNN of the Arab world, Al-Jazeera, a six-year old Arabic news channel, maintained a low profile in the West until the September 11, 2001 terrorist attacks. Prior to the attack on America, Al-Jazeera was praised and respected by Western governments for its liberal reporting. Since the attack, many countries in the West, particularly the United States, claim that Al Jazeera is dangerously biased towards the West and regard the news station as a threat. This paper examines the alleged bias of Al-Jazeera against America, comparing and contrasting the communitarian Western media to the libertarian Middle Eastern approach to reporting "both sides of the story."

### (F.4) Rita Mayekar, Communications Undergraduate

## PANEL & PAPER ABSTRACTS

**(G.1) Empirical Examination of Theoretically Anticipated Market Priced Risk Factors**  
Marc D. Richards, M.B.A. Graduate Student, and Dr. LeRoy D. Brooks, Edward J. and Louise E. Mellen Chair, Economics and Finance

In financial theory, the investors' required rate of return on equity includes a return for the time value of money and market priced risk factors. Normative factors viewed as possibly requiring risk premiums include the general business cycle, an independent component in interest rates and fossil fuel prices. Fama and French offer an ad hoc model where firm size and a company's book value to market value of equity are fairly efficient in estimating investors' required rates of returns on common stocks. The proposed study examines to see if the ad hoc variables represent the underlying theoretically anticipated priced factors.

**(G.2) What Is Justice, and What Does Justice Require?**

Meredith Block, Sociology Undergraduate; Advisor: Dr. Richard Clark, Sociology.  
What is justice and what does it require are two of the world's most timeless questions. In the course of the presentation these questions will be discussed in the context of crime and criminal behavior. Some people believe that justice is simply the execution of a fair judicial process, some believe in retribution and punishment, some in restoration, and others believe that justice is something that occurs after death. All of these issues will be examined. Some people believe that the world is inherently just, and others trust that justice does not and will not ever exist. The answers to these questions regarding justice appear to be subjective, relying on one's religion, life experience, age, political ideology, race, and socioeconomic status, as well as many other correlates. It seems that for as many people as there are to ask, there are opinions of what justice is and what it requires. How individuals define justice for themselves given these external social factors will also be addressed.

**(G.3) Welfare Reform: Successes, Failures, and the Need for Re-authorization**

Caitlin Rohrer, Sociology Undergraduate; Advisor, Dr. Phyllis Braudy Harris, Sociology  
The Welfare Reform Act of 1996, Temporary Assistance for Needy Families (TANF) was implemented under the Personal Responsibility and Work Opportunity Act of the Clinton Administration. TANF was scheduled for re-authorization in September of 2002, but has been postponed. This paper investigates TANF, its successes, its failures, and key issues that should be considered in re-authorization. An extensive literature review revealed several issues regarding this topic, including but not limited to: funding, time limits, performance bonuses, program flexibility, and its impact on poverty. This study also looks specifically at the effects of TANF in Cuyahoga County, using secondary data resources.

**(G.4) The Psychosocial adjustment of older women's relocation to a long-term care setting: A qualitative study**

Jill Connors, Sociology Undergraduate; Advisor: Dr. Phyllis Braudy Harris, Sociology  
The purpose of this study is to gain an in depth understanding of social-psychological aspects of older women's adjustment and transition to a long-term care facility. The study addressed questions such as: What are some important factors affecting the decision to move? What environmental factors, personal attributes, and social supports influence adjustment and transition? Data was gathered through interviews with four women between 77 and 83 years old. The results of this study suggest that: 1) the more control in the decision one has, the

## PANEL & PAPER ABSTRACTS

easier time one will have adjusting 2) the adjustment process is easier if one can come to some degree of acceptance that she needs the environment, and 3) Social support from family and friends are important. Overall, the study suggests that no resident will be properly adjusted until she makes up her mind to accept being there.

**(H.1) Ethics in Sports: A Philosophic Inquiry in the Value of Sport Philosophy in Daily Life**

Dr. Tamba Nlandu, Philosophy  
Ethics in Sports is a new philosophy course intended to fill a void at JCU. Because John Carroll University is committed to excellence in liberal education with a strong emphasis on a curriculum that stresses the idea that "philosophical questions play a crucial role [in order for our] students [to] have the opportunity to develop, synthesize, and live a value system based on respect for and critical evaluation of fact" (JCU "Mission Statement"), the inclusion of Ethics in Sport in the university curriculum provides a long overdue course, which aims at discussing the philosophical foundations and implications of one of our community's favorite activities, namely sport. Indeed, not only does Ethics in Sport provide an opportunity for fostering in our students the "intellectual, moral and spiritual principles which [should] enable them to cope with new problems" (MS), it also offers the opportunity to build "on the sensitivity and judgment that prepare them to engage in responsible social action" (MS). In order to achieve these goals, Ethics in Sport stresses *action*, not logical argumentation alone, as a means for attaining *ethical excellence* in sport. In short, this course is founded in the spirit of *meliorism*. Indeed, because sport is a human activity, this course is designed to approach it with the understanding that all sport aims at improving the human condition both individually and collectively.

**(H.2) Effective Use of Online Discussion Forums**

Dr. Marc Lynn, Center for Teaching & Learning  
It is important to consider facility with modes of communication that may be required for effective discussion. In the traditional class discussion, students should listen. In an online discussion, they should read. In the traditional class discussion students should speak. In an online discussion they should write. Many students listen and speak with more ease than they read or write. Complaints are made about students listening but not really hearing, speaking but not really thinking. When the pace of discussion is slowed the result tends to be more thoughtful. Online discussions let the process become more deliberate, less constrained by time, and can significantly improve student performance and foster collaborative learning when used in conjunction with the case method of teaching. Improvements in individual student preparation and effective use of class discussion time are at least as evident as improvements in final case analysis. However, these benefits do not come automatically.

**(H.3) Educational Technology, Globalization and the Ethics of Time**

Dr. David Shutkin, Education & Allied Studies  
The discourse on globalization in the field of Educational Technology makes evident corporate interests in education as it emphasizes skills for a 21st century global economy. I trace this discourse to the National Educational Technology Standards (NETS) to relate teaching



## MAIN HEADING

for technological change to international income inequality. The NETS contribute to globalization because they are disconnected from local contexts and contribute to the standardization of time. Yet, evidenced by the digital divide, globalization is not unifying; it polarizes peoples and countries. While the NETS emphasize the future, this is contrasted to a focus on the present where proficiency testing requires schools to bracket the NETS. More globally, this emphasis on the future is contrasted with present concerns of nations such as Ghana and Brazil burdened by debts to agencies like the IMF. They are forced to increase student/teacher ratios while most schools lack electricity, not to mention Internet connectivity. Source of funding: John Carroll University 2002 Summer Research Fellowship

### (L.1) Development of Caring

Drs. Krystyna Nowak-Fabrykowski, Nancy Taylor, Mark Storz, Tom Kelly, Lisa Shoaf, Kay Dunlap, S. Barfaro, Education and Allied Studies

The purpose of our research group is to examine the concept of caring, especially caring dispositions. Our quest for understanding caring is based not only on the theoretical investigation, but also on the application of our findings into practice of those working in the field of education. As the starting points, we are studying the development of caring in elementary, middle, and high school preservice teachers, school counselors, and school psychologists. We would like to present research in different aspects of caring as a tie-in to different professions in the education field. Our approach is grounded in the theory of Noddings (1971, 1984, 1992) and Meyeroff (1971).

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