

University of North Carolina at Asheville
The Undergraduate Research Program
Spring 2011 Symposium



Program and Abstract Book

Thursday • April 21, 2011 • 9:00 – 4:50

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Professor Ronald Sundstrom

“What’s Lost in the Blur?: Post-Racial Ideals and Blurred
Ethno-Racial Boundaries”

Thursday, April 21, 7:00p.m.
Laurel Forum, Karpen Hall, UNC Asheville Campus

The talk is free and open to the public

Acknowledgements & Thanks	83
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Welcome



Dr. Anne Ponder Chancellor



Dr. Mark Harvey
Director, UR Program



Dr. Ed Katz
Associate Provost and
Dean of University Programs

The Administration of the University of North Carolina at Asheville and the Undergraduate Research Program welcome you to the Tenth Annual Spring Symposium on Undergraduate Research and Creativity. This event continues a long tradition of recognizing and celebrating student achievement at UNCA.

Even before the founding of the Undergraduate Research Program in 1985, undergraduates at UNCA were actively participating in research and creating art. It is a point of pride for our University that we encourage and celebrate such work.

To the students who present today - congratulations on your fine work and achievements. To the faculty advisors who worked with each of these students - congratulations on your contributions. To the members of the faculty and the administration who made this day a reality--our thanks. All of you have enriched the intellectual and artistic life of the university.

Enjoy!



Bio: Ronald Robles Sundstrom is an Associate Professor of Philosophy at the University of San Francisco; additionally, he teaches for USF's African American Studies program and the Master of Public Affairs program for the Leo T. McCarthy Center of Public Service and the Common Good. He was a co-winner of the 2010 USF Distinguished Teaching Award. His areas of research include race theory, political and social theory, and African and Asian American philosophy. He has published several essays and a book in these areas, including *The Browning of America* and *The Evasion of Social Justice* (SUNY, 2008). His current work is on racism, xenophobia, and homophobia, and a separate book project on *Mixed Race and the Ethics of Identity*.

Ronald Sundstrom is Associate Professor of Philosophy at the University of San Francisco. He also teaches in USF's African American Studies Program and in the Leo T. McCarthy Center of Public Service and the Common Good.

His areas of research include race theory, political and social theory, and African and Asian American philosophy. He has published several essays and a book in these areas, including *The Browning of America* and *The Evasion of Social Justice* (SUNY, 2008).

His current thinking focuses on racism, xenophobia, and homophobia. His latest project is a new book entitled *Mixed Race and the Ethics of Identity*.

He was a co-winner of the 2010 USF Distinguished Teaching Award.

Ronald Sundstrom's visit to Asheville is sponsored by the Sara and Joseph Breman Professorship and the Department of Sociology and Anthropology.

“What’s Lost in the Blur?: Post-Racial Ideals and Blurred Ethno-Racial Boundaries”

**Thursday, April 21, 7:00p.m.
Laurel Forum, Karpen Hall, UNC Asheville Campus
The talk is free and open to the public**

General Oral Presentation Schedule

SESSION I

Art

Session IA • Art Owen 237 • 9:00 – 10:00am • Moderator: Bill Utz

9:00 – 9:20 **Concealment and Expression: A Paradoxical Love Affair within Carnival**
Caitlin Johnson [Tamie Beldue], Art

9:20 – 9:40 **Missing Parts: The Fragmented Form**
Kevin Payne [Tamie Beldue, Megan Wolfe], Art

Dance and Line: Creating Emotion in Space
Sheli Karr [Tamie Beldue], Art

9:40 – 10:00 **Personifying the Shadow**
Allison Greenfield [Robert Dunning, Mark Koven], Art

You Are Here
Anna Stanley [Mark Koven], Art

Art

Session IB • Art Owen 102 • 9:00 – 10:00am • Moderator: Mark Koven

9:00 – 9:20 **Eyedentuhtea**
Max Trainque [Mark Koven], Art

9:20 – 9:40 **Up for Interpretation: Creating a Photo-Graphic Novels and the Tale of Jasper Collins**
Shalamar Blevins [Mark Koven, Eric Tomberlin], Art

9:40 – 10:00 **Signal Flow: Audio Engineering as Metaphor for Phenomenological Art**
Jesse Burr [Tamie Beldue], Art

Environmental

Session IE • Zeis 014 • 9:00 – 10:20am • Moderator: Becca Hale

9:00 – 9:20 **Trichloroethene (TCE) in surface water near the CTS site in south Asheville**
Michael Wuttke [Jeffery Wilcox], Environmental Science

9:20 – 9:40 **The Effects of the Outdoors on Student Performance in a Fifth Grade Language Arts Class**
Mollie McDonald [Irene Rossell], Environmental Studies

- 9:40 – 10:00 **A Look at the Western North Carolina Report Card on Forest Sustainability**
Rose Freer-Lancaster [Todd Pierce], Environmental Studies
- 10:00 – 10:20 **Detection and habitat analysis of the cerulean warbler on the Blue Ridge Parkway**
Cheryl Geiger [Barbara Reynolds], Environmental Studies
- 10:20 – 10:40 **The Fate and Transport of Pharmaceuticals and Personal Care Products in Sediments and Soils**
Katharine Kerr [Jeffery Wilcox], Environmental Studies

Chemistry

Session IF • Zeis 123 • 8:30 – 10:30am • Moderator: George Heard

- 8:30 – 9:00 **Synthesis of Combretastatin-A4 Derivatives Containing Amide Functionality: Amino Acid Attachment onto Carboxyl Groups**
Nigel T. McCourry [Herman Holt], Chemistry
- 9:00 – 9:30 **Cleavage of C-C Bonds Adsorbed on a Rhodium Surface**
Dana Clark [Chemistry], Sally Wasileski
- 9:30 – 9:50 **Computational Determination of Ethanol Dehydrogenation Reaction Pathway over Ni, Pd, and Rh Catalytic Surfaces**
Kyle Cavagnini [Sally Wasileski], Chemistry
- 10:00 – 10:30 **Investigations into Hydrogen Peroxide Oxidation Using a Homogeneous Cr (III) Catalyst**
Phillip Montgomery [George Heard], Phillip Montgomery

Biology

Session IG • Zeis 202 • 9:00 – 10:40am • Moderator: Tom Beatty

- 9:00 – 9:20 **Effects of Pond Drying on Population Density of Amphibian Species in an Ephemeral Pond**
Brandon Booker [James W. Petranka], Biology
- 9:20 – 9:40 **Using Dendroecology to Determine the Effect of *Celastrus orbiculatus* on *Liriodendron tulipifera* growth**
Jacob Francis [Jonathan Horton], Biology
- 9:40 – 10:00 **Optimal Foraging of Wood Frog (*Rana sylvatica*): Can Larvae Distinguish Between Minute Differences in Patch Quality?**
Andrea Rich [James Petranka], Biology

Education

Session IH • Zageir Hall 142 • 9:00 – 10:00am • Moderator: Nancy Ruppert

- 9:00 – 9:20 **The Effects of Mindfulness Meditation on Adult Learner’s Language Acquisition Skills**
Lowell Cook [Nancy Ruppert], Education
- 9:20 – 9:40 **Teaming: What Makes it Work?**
Kelly Mundhenk [Nancy Ruppert], Education

Anthropology and Sociology

Session I-I • Zageir 227 • 9:00 – 10:40am • Moderator: Karin Peterson

- 9:00 – 9:20 **The Bicycle Sets Me Free: Transportation Choices of Women in Amsterdam**
Allison Schad [Heidi Kelley], Sociology and Anthropology
- 9:20 – 9:40 **Menstruation and Medicine: Social Opinions in the Modern and Ancient Greek Contexts**
Charlotte Pate [Sophie Mills], Anthropology
- 9:40 – 10:00 **In Between Worlds**
Amelia Welsh [Heidi Kelley], Anthropology
- 10:00 – 10:20 **Place, Community and Belonging among Immigrants in Emma, North Carolina**
Jack Manning [Heidi Kelley], Sociology and Anthropology
- 10:20 – 10:40 **Narratives of Resistance Displacement and Emplacement In the Burton Street Community**
Anna Lee Oblinger [Heidi Kelley], Anthropology

Psychology

Session I-L • Carmichael 230 • 9:00 – 10:40am • Moderator: Tracy Brown

- 9:00 – 9:20 **Meditation and the Stroop Task**
Jacqueline Levinson and Trish McCuen [Tracy Brown], Psychology
- 9:20 – 9:40 **Music While You Learn: The Effect Listening to Music has on Reading Comprehension and Concentration**
Bethany Thompson, Abigail Griffith [Tracy Brown], Psychology
- 9:40 – 10:00 **Visual Imagery and Memory in Print Advertising**
Katherine Mauterer [Tracy Brown], Psychology
- 10:00 – 10:20 **Factors that Predict Conversational Style in Men and Women**
Spencer Revels and Kate Kastelberg [Tracy Brown], Psychology
- 10:20 – 10:40 **Effective short-term effects of arts therapies for Traumatic Brain Injury (TBI) patients**
Anna Baker [Tracy Brown], Psychology

History

Session I-N • New Hall 016 • 9:00 – 10:40am • Moderator: Tracey Rizzo

- 9:00 – 9:20 **Broadcasting Propaganda: Voice of America's Role in the Hungarian Revolution**
Patrick Brown [Ellen Pearson], History
- 9:20 – 9:40 **What Thou Lovest Well Remains, The Rest Is Dross: Jonathan Williams And The Jargon Society**
Melanie English [Tracey Rizzo], History
- 9:40 – 10:00 **Attractive Morons Abound in the Community: The Eugenics Board, The Human Betterment League, and State-Sanctioned Sterilization in North Carolina 1929-1977**
Anna Spears [Tracey Rizzo], History
- 10:00 – 10:20 **The Priest who Opposed the "Creatures:" Father Terence Caraher, Prostitution, Progressivism and the Nymphia in Turn-of-the-Century San Francisco**
Virginia Wells-Layne [Ellen Pearson], History
- 10:00 – 10:40 **¿Dónde están?: Women's Protest to the Pinochet Regime, 1973-1990**
Meredith Schnider [Tracey Rizzo], History

Literature

Session I-O Karpén Hall 016 9:20 – 10:40am Moderator: Jacque Morgan

- 9:20 – 9:40 **Heteronormative and Queer Projections in Mainstream Film**
Auburn Petty [Lorena Russell], Honors Special Topics: Queer Films
- 9:40 – 10:00 **300 Naked Men: The Production and Fetishization of Masculinity in "300"**
Nicholas Rhoades [Lorena Russell], Honors Special Topics: Queer Films
- 10:00 – 10:20 **Empathy is Queer: Dissections of Utopian Visions in Queer Film**
Jacob Barker [Lorena Russell], Honors Special Topics: Queer Films
- 10:20 – 10:40 **Subjectivity and Voice in Documentary Film: Making the Lens Visible in Paris Is Burning**
Kristina Bender [Lorena Russell], Literature

Economics

Session I-P • Karpén Hall 033 • 9:00 – 10:20am • Moderator: Chris Bell

- 9:00 – 9:20 **The Cramer Effect**
Stephen Bava [Chris Bell], Economics
- 9:20 – 9:40 **Baseball, the White Gentlemen's Sport?**
Sebastian Jamaica [Chris Bell], Economics
- 9:40 – 10:00 **The Illicit Market of ADHD Medication on a College Campus: A Case Study of Supply and Demand**
Savannah King [Chris Bell], Economics

10:00 – 10:20 **The Organization Economics of Roman Slavery: An Analysis of Agricultural Labor Market Organization**
Jonathan Griffin [Chris Bell], Economics

Literature

Session I-R • Karpen Hall 113 • 9:00 – 10:40am • Moderator: Holly Iglesias

9:00 – 9:20 **The Art of Rearrangement: Using Anagrammatic Constraint To Liberate The Creative Process**
Brian Hart [Richard Chess], Literature

9:20 – 9:40 **“Sunday Morning” and the Secular Anthem of Wallace Stevens**
Joseph Ferrelli [Richard Chess], Literature

9:40 – 10:00 **Out of Ilium: Treatment of Place in Kurt Vonnegut's Slaughterhouse-Five, Galapagos, and Cat's Cradle**
Jessica Guyer [Lorena Russell], Literature

10:00 – 10:20 **From the Ground Up: Wendell Berry's 'Feminist' Theory**
Paige Paris [Merritt Moseley], Literature

10:20 – 10:40 **Pushed from the Pedestal: The Deteriorating Status of Southern Women as Embodied by Blanche Dubois and Stella Kowalski**
Laura Hunt [Erica Locklear], Literature

Political Science and Psychology

Session I-U • Karpen Hall 011 • 9:00 – 10:40am • Moderator: Mark Gibney

9:00 – 9:20 **The Effect of Social, Economic and Political Upheaval on Terrorist Attacks**
James Gillespie, Political Science

9:20 – 9:40 **Need or Politics: The Motives behind U.S. Foreign Assistance**
Many Ellen Dendy, Political Science

9:40 – 10:00 **Explaining Variation in Incarceration Rates**
Leanna Miller, Political Science

10:00 – 10:40 **Stress, Workload, and Well-Being of UNCA Students: A Profile**
Meredith Givens and Casey Ward [Tracy Brown], Psychology

Foreign Language – French Literature

Session I-V • Zageir 140 • 9:00 – 9:20am • Moderator: Sandra Malicote

9:00 – 9:20 **Les Traditions de Poesie et La Question de Transnationalisme**
Gillie Logan [Sandra Malicote], French Literature and Language

SESSION II

Art

Session IIA • Owen Hall 237 • 10:20 – 12:00pm • Moderator : Leisa Rundquist , Robert Tynes

- 10:20 – 10:40 **Hitchcock's MacGuffins: Depicting the Nature of Narrative**
Sara Bernardi [Virginia Derryberry, Robert Tynes], Art
- 10:40 – 11:00 **Carnival, Fun, Value**
Steve Spurgeon [Mark Koven, Robert Tynes], Art
- 11:00 – 11:20 **Microscopic Marvels: Living Architecture and the Imagination**
Carly Powell [Virginia Derryberry, Robert Tynes], Art
- 11:20 – 11:40 **Asheville Art Museum Internship**
Valerie Whitmire [Leisa Rundquist], Art
- 11:40 – 12:00 **Highsmith Gallery Internship**
Allison Gulick [Leisa Rundquist], Art

Art

Session IIB • Owen Hall 102 • 10:20 – 12:00pm • Moderator: Tamie Beldue

- 10:20 – 10:40 **Friend Me: The Art of Darkroom Photography and Live Conversation in a Digital Social-Networking Culture**
Erin Fussell [Tamie Beldue, Eric Tomberlin], Art
- 10:40 – 11:00 **Harmony in Time**
Megan Kazmierski [Tamie Beldue, Eric Tomberlin], Art
- 11:00 – 11:20 **Journey to the Essential Self**
Stephen Gstundtner [Tamie Beldue, Eric Tomberlin], Art
- 11:20 – 11:40 **Story Starters**
Mary Alice White [Robert Tynes, Tamie Beldue], Art
- 11:40 – 12:00 **Finding Elements: Understanding Visual Representations through Process**
Shellie Stanberry, Megan Chalk [Robert Tynes], Art

Atmospheric Sciences

Session IIE • Zeis 014 • 10:50 – 12:30pm • Moderator: Chris Hennon

10:50 – 11:10 **The Analysis of Boundary Layer Refractivity Using the CSU-CHILL Radar**

David Coates [Christopher Hennon], Atmospheric Sciences

11:10 – 11:30 **Using the Rossby Radius of Deformation as a Forecasting Tool for Tropical Cyclogenesis**

Philippe Papin [Chris Hennon], Atmospheric Sciences

Chemistry

Session IIF • Zeis 123 • 10:30 – 12:30pm • Moderator: Jason Schmeltzer

10:30 – 11:00 **Remediation of Coal Fly Ash Using Two Plant Varieties to Hyperaccumulate Heavy Metals**

Virginia Porden [Sally Wasileski], Chemistry

11:00 – 11:30 **Stereoselective Synthesis of Aziridine and Epoxide Containing Analogues of the Combretastatins**

Ryan A. Oliver [Herman Holt], Chemistry

11:30 – 12:00 **A Study and Comparison of Dehydrogenation Steps of Ethylene Glycol and Ethanol Over Rhodium Catalysts**

Britt Tyler [Sally Wasileski], Chemistry

12:00 – 12:30 **Synthesis of Novel Cyclobutane Containing Combretastatin Analogues**

David Ricker [Herman Holt], Chemistry

Interdisciplinary Studies

Session II-G • Zeis 202 • 10:50 – 12:30pm • Moderator: Surain Subramaniam

10:50 – 11:10 **The Three-Gorges Dam Project and Changes in China's Policy-Making Structure: What Hydropower Policy in China reveals about the Liberalization and Pluralization of Chinese Government Structure**

Cantrell Brown [Surain Subramaniam], Interdisciplinary Studies

11:10 – 11:30 **Ethno{fiction}: Can Fiction Drink Tea with Ethnography?**

Brittany Davis [Heidi Kelley], Interdisciplinary Studies

11:30 – 11:50 **The Trajectory of Haiti's Private Sector: Strategic Philanthropy as the new Business Model**

Anjelica Fresia [Surain Subramaniam], International Studies

11:50 – 12:10 **Assessing the Effectiveness of Peer Education on Understanding of Relationships Between Sex, Gender and Sexuality**

Melody Rood, Natalka Wiszczur [Amy Lanou, Karin Peterson], Women's Gender and Sexuality Studies

12:10 – 12:30 **One Nation Under God: A Comparative Analysis of the Effects of a Religion Influenced Political Climate on Women's Rights**
Ashleigh Redmond [Surain Subramaniam], International Studies

Philosophy and History

Session II I • Zageir 227 • 10:50 – 12:30pm • Moderator: Heidi Kelley

10:50 – 11:10 **The Importance of Transition in Mozart and Tarkovsky**
Peter Mencher [Charles McKnight], Philosophy

11:10 – 11:30 **Health Care in America: A Moral Reform**
Tiffany Reams [Brian Butler], Philosophy

11:30 – 11:50 **A Refutation of the Augustinian View of Evil**
Sarah Reece [Duane Davis], Philosophy

11:50 – 12:10 **Beginning at Jerusalem in the Regions Beyond: Edward O. Guerrant and the Southern Home Mission Movement**
Caroline E. Diepenbrock [Ellen Pearson]; History

12:10 – 12:30 **The Meaning And Significance Of Polychrome Greek Statuary**
William W. Knauth [Dorothy Dvorsky-Rohner], History

Psychology

Session II-L • Carmichael 230 • 10:50 – 12:30pm • Moderator: William Roskind

10:50 – 11:10 **Quantitative Proprioception Assessment across the Lifespan**
Serena Vonkchalee and Catherine Welder [Jason Wingert, PhD, PT, and Patrick Foo, PhD], Health and Wellness and Neuroscience

11:50 – 11:30 **Developing a Neuroscience Community Outreach Program in WNC**
Joseph Martin, Taylor Cole, Brandon Booker and Jesse Tanas [Patrick Foo], Psychology

11:30 – 11:50 **Processing of Race and Stereotypes in Job Applications**
Ebony Allen and Chioma Okoli [Tracy Brown], Psychology

11:50 – 12:10 **The Frustration-Aggression Hypothesis: How Fair and Unfair Competition Affects Aggression**
Molly Austin [Tracy Brown], Psychology

12:10 – 12:30 **Stimulus Characteristics Affecting the Auditory Motion Aftereffect**
John Baley, Abigail Ruffle [Michael Neelon], Psychology

Latin American Studies- Literature

Session II-M • New Hall 012 • 12:15 - 1:45pm • Moderator: Elena Adell

- 12:15 – 12:30 **Guatemala: Education in a Multicultural Country**
Rosa Maria Pedro Vicente [Elena Adell], Spanish
- 12:30 – 12:45 **Post-war Guatemalan Narrative: A Comparison of the Novels of Ronald Flores and Javier Payeras**
Hugh Browder [Elena Adell], Spanish
- 12:45 – 1:00 **Enacting Pachacutí: The Play *Tragedia Del Fin De Atawallpa* and Its Background**
Erica Anderson [Elena Adell, Greta Trautmann, Alice Weldon], Spanish
- 1:00 – 1:15 **Las Mujeres Suicidas: Ejemplos de Storni y de Burgos**
Larren Beach [Elena Adell, Eric Gant, Greta Trautmann], Spanish
- 1:15 – 1:30 **The Creation of the Mexican Hero's identity in the Corrido**
Marcela Garza [Elena Adell, Greta Trautmann], Spanish
- 1:30 – 1:45 **La literatura mexicana; un vistazo a los temas del "viaje"**
Katherine Burkett [Elena Adell, Greta Trautmann], Spanish

Literature

Session II-O • Karpen Hall 016 • 10:50 – 12:30pm • Moderator: Lorena Russell

- 10:50 – 11:10 **The Gay Male in Film**
Hannah Ritter Paulin [Lorena Russell], Honors Special Topics: Queer Films
- 11:10 – 11:30 **Queering I Am Love**
Andrew Purinai [Lorena Russell], Honors Special Topics: Queer Films
- 11:30 – 11:50 **Boys and Girls Cry: A Look at Violence Experienced by the Transgender Community**
Samantha Maser [Lorena Russell], Honors Special Topics: Queer Films
- 11:50 – 12:10 **On the Cult of the Star and the Existence of Contemporary Camp**
Edward Madill [Lorena Russell], Literature and Language
- 12:10 – 12:30 **Encoding of the Lesbian Relationship from Novel to Film Adaption**
Rebecca Williams [Lorena Russell], Honors Special Topics: Queer Films

Latin American Economics

Session II-P • Karpen Hall 033 • 10:50 – 12:10pm • Moderator: Robert Tatum

- 10:50 – 11:10 **An Evaluation of Bolivia's Education System**
Eleanor Ouellette [Robert Tatum], Economics
- 11:10 – 11:30 **Health in Bolivia**
Halcyon Garrett [Robert Tatum], Economics

11:30 – 11:50 **Bolivia**
Ismael Borges [Alice Weldon], Spanish

11:50 – 12:10 **Bolsa Família: Location Adjusted Benefits and Their Potential Impact**
Alyssa Strazanac [Robert Tatum], Economics

The VITA Program: Connecting The Classroom To the Community

Session II-Q • Karpen Hall 038 • 10:50 – 11:50pm • Moderator: Chris Bell

10:50 – 11:10 **Characteristics of the Working Poor: Perceptions from the VITA Experience**
Katlin Pickering and Alyssa Strazanac [Joe Sulock], Economics

11:10 – 11:30 **Research Issues Involving Tax Preparation of Low-Income Households**
Jonathan Griffin, Sam Riddle [Joseph Sulock], Economics

11:30 – 11:50 **The VITA Program: From the Classroom to the Community**
Preparing Taxes for the Working Poor: An Accounting Perspective
Dwight Ehrlichman [Joseph Sulock], Management and Accountancy

Literature

Session II-R • Karpen Hall 113 • 10:50 – 12:10pm • Moderator: Merritt Moseley

10:50 – 11:10 **“I saw the face of God”: The Grotesque as the Mode of Religious Discussion in O'Connor and Country Gothic Music**
James Brooks [Erica Locklear], Literature

11:10 – 11:30 **All Men are Born with a Death Sentence: Reconciling the Absurd in Albert Camus' *The Stranger***
Samuel Rosen [Blake Hobby], Literature

11:30 – 11:50 **The Disability Spectrum: Carson McCullers and the Cultural Significance of Difference**
Christiane Smith [Katherine Min], Literature and Language

11:50 – 12:10 **The Power and Price of Making: Art, Magic, and the Machine in Tolkien's *Legendarium***
Robert Willis [Merritt Moseley], Literature

SESSION III

Art

Session III-A • Owen Hall 237 • 12:40 -2:40pm • Moderator : Barbara Jaslow

12:40 – 1:00 **Edvard Munch and Gustav Klimt: Contradictions in the Representations of Women**
Kathryn Armstrong [Cynthia Canejo], Art History

- 1:00 – 1:20 **Identity Theory in Abstract Expressionism**
Sarah Jones [Cynthia Canejo], Art History
- 1:20 – 1:40 **Presenting the Freak: The Photography of Charles Eisenmann**
Emily Baker [Cynthia Canejo], Art
- 1:40 – 2:00 **Courbet, Eroticism, and the Birth of the Modern Woman**
Allison Gulick [Leisa Rundquist, Cynthia Canejo], Art History
- 2:00 – 2:40 **Black Mountain College Museum and Arts Center: Preserving a Legacy**
Richard Seguin [Cynthia Canejo], Art History

A Literary Reading of Creative Nonfiction

Session III-C • Laurel Forum • 12:40 – 1:44 pm • Moderator: Lori Horvitz

- 12:40 – 12:52 **Rain over Memphis**
Matt Owens [Lori Horvitz], Literature and Language
- 12:52 – 1:08 **Falling Risk**
Christina Ayers [Lori Horvitz], Creative Writing
- 1:08 – 1:20 **The Antiques Road Show and Other Love Stories**
Mary Deal [Lori Horvitz], Literature
- 1:20 – 1:32 **Passing Trucks**
Amanda Anne Platt [Lori Horvitz], Religious Studies
- 1:32 – 1:44 **Feeling Around in the Dark**
Brian Hart [Lori Horvitz], Literature

Management

Session III-D • Zageir 246 • 12:40 – 2:00pm • Moderator: Bryan Schaffer

- 12:40 – 1:00 **Workplace Diversity among First and Second Shift: How Perceptions of Dissimilarity Impact Levels of Task- and Relationship-Based Conflict**
Guy Cooper [Bryan Schaffer], Management
- 1:00 – 1:20 **Changes in Value Orientations of College Students: Assessing the Impact of Economic and Societal Events over the Last Decade**
Michelle DiPietro [Bryan Schaffer], Management
- 1:20 – 1:40 **The Perceived Effectiveness of the NC General Assembly and How It Varies From the Voters**
Nelía Hamby [Jeffery Foreman], Management
- 1:40 – 2:00 **Uniform Color and the Athlete's Ideal Performance State: An Emotional Connection**
Jenna Dover [Jeffery Foreman], Management

Atmospheric Sciences and Mathematics

Session III-E • Zeis 014 • 12:40 – 2:00pm • Moderator: Steve Patch

- 12:40 – 1:00 **Dew Point Temperature Variations at Asheville, North Carolina in April 2008**
Gustavo Riggio [Alex Huang], Atmospheric Sciences
- 1:00 – 1:20 **Cylindrical Braids and Knots: The Braids on a Cylinder**
Austin J. Mack [David E. Peifer], Mathematics
- 1:20 – 1:40 **Longitudinal Study of Chemical Properties and Macroinvertebrate Diversity in Western North Carolina Streams from 2005 to 2009**
Emma Guild [Steven Patch], Statistics
- 1:40 – 2:00 **Co-orbital Dynamics in Early Solar System Formation**
Joseph Thomas [Sam Kaplan], Math

Place and Identity

Session III-I • Zageir 227 • 12:40 – 2:55pm • Moderator: John Wood

- 12:40 – 1:00 **Policing the Community: Interactions of Nation and State through the Lens of Police Presence in Asheville Communities**
Emily Rhyne [Heidi Kelley], Interdisciplinary Studies
- 1:00 – 1:20 **Love, Contact, and Peace in the Hour of Worship**
Andrea Rich [John Wood], Anthropology
- 1:20 – 1:40 **Nurturing the Places that Nurture Us**
Alex Livingston [John Wood], Anthropology
- 1:40 – 2:00 **A Place For One Man Alone is Not a City: Coming to Political Space in Antigone**
Abigail Agriesti [Ken Betsalel], Political Science

Break

- 2:15 – 2:35 **If There is Ever a Dire Need: The Use of Story in Building Community, Civic Education and Community Service Learning**
Ashley Pearce and William Carrington [Kenneth Betsalel], Political Science
- 2:35 – 2:55 **Cape Coast or Oguaa?: A Cultural-Historical Examination of Place-Names, Identities and Social Realities**
Andrea Gottschalk [Heidi Kelley], Sociology

Psychology

Session III-L • Carmichael 230 • 12:40 – 2:20pm • Moderator: Dan Gerber

- 12:40 – 1:00 **Theory of Mind and Language in Aging Adults**
Ashton Bode, Taylor Cole, Erin Greger, Julia Rooks, Brittany Steiner, Jenna Stunkard [Melissa Smith], Psychology
- 1:00 – 1:20 **The Effects of Expectation on Physiological Correlates of Reward Responses to Musical Stimuli**
Sara Fenwick, Kyle Cavagnini, Silvia Chapman [Michael Neelon], Neuroscience--Psychology
- 1:20 – 1:40 **The Effect of Cognitive Decline in Aging Adults**
Erin Greger [Melissa Smith], Psychology
- 1:40 – 2:00 **Haptic Sensation in a Perceptual Illusion**
William Howe [Tracy Brown], Psychology
- 2:00 - 2:20 **Language and Theory of Mind in Preschool-Aged Children**
Samantha Pope, Blane Garrou, Kylee Frye, Sarah Crittenden [Melissa Smith], Psychology

Economics

Session III-P • Karpen Hall 033 • 12:40 – 2:00pm • Moderator: Chris Bell

- 12:40 – 1:00 **Transmission of Monetary Policy to Equity Markets**
Brittany Wheeler [Robert Tatum], Economics
- 1:00 – 1:20 **O Tannenbaum: A Case Study of the Christmas Tree Market in Western North Carolina**
Bethyn Vinh Merrick-Nguyen [Chris Bell], Economics
- 1:20 – 1:40 **Foreign Direct Investment: An Economic, Political, and Social Analysis**
Justin Dent [Joseph Sulock], Economics
- 1:40 – 2:00 **Greed: Its Variable Implications in a Study of the Ultimatum Game**
Andrew Wertheim [Chris Bell], Economics

Literature

Session III-O • Karpen Hall 016 • 12:40 – 1:40pm • Moderator: Lorena Russell

- 12:40 – 1:00 **The Changing Portrayal of AIDS in Film**
Alexandra Browning [Lorena Russell], Honors Special Topics: Queer Films
- 1:00 – 1:20 **Title Not Available**
Jessica McCormic [Lorena Russell], Literature
- 1:20 – 1:40 **Title Not Available**
Hannah Critterden [Lorena Russell], Literature

Literature

Session III-R • Karpen Hall 113 • 12:40 – 2:00pm • Moderator: Merritt Moseley

- 12:40 – 1:00 **Identity of a Hero: Changes in the Heroic Identity from Greek mythology to Percy**
Hannah Drum [Merritt Moseley], Literature
- 1:00 – 1:20 **They Kill, We Watch: Voyeurism in Cormac McCarthy's *Child of God***
Kimberly Calvert [Merritt Moseley], Literature
- 1:20 – 1:40 **The Role of Author-Imagined Religions in *Cat's Cradle* and *Do Androids Dream of Electric Sheep?***
Melissa Dills [Merritt Moseley], Literature
- 1:40 – 2:00 **Excluded Middles: The American Dream in Thomas Pynchon's *The Crying of Lot 49***
Lianne Domenic [Merritt Moseley], Literature

Computer Science

Session III-S • Rhoades Robinson Hall 217 • 12:40 – 1:40pm • Moderator: Charles Massey

- 12:40 - 1:00 **Digital Music Library Builder**
Chris Matthews [Charles Massey], Computer Science
- 1:00 – 1:20 **Kollabit.com**
Scott Scerri [Charles Massey], Computer Science
- 1:20 – 1:40 **Processing Game**
Will Lacy [Susan Reiser], Computer Science
- 1:40 – 2:00 **Brain Computer Interface for Controlling Motorized Devices**
Aron Dennen [Rebecca Bruce] Computer Science

Mass Communication

Session III-T • Karpen Hall 316 • 12:40 – 2:20pm • Moderator: Alan Hantz

- 12:40 – 1:00 **Origins of the Czechoslovak New Wave**
Katherine Clark [Donald Diefenbach], Mass Communication/Literature
- 1:00 – 1:20 **Social Protections, Welfare Stigma and the Use of Food Donation Services**
Randall Hammond [Alan Hantz], Mass Communication
- 1:20 – 1:40 **Unemployment: The Labor Force and Stigma**
Miriam Allison [Alan Hantz], Mass Communication
- 1:40 – 2:00 **Images of Poverty in Western North Carolina**
Ian Shannon [Alan Hantz], Mass Communications
- 2:00 – 2:20 **North Carolina's Ten-Year Plan**
Patrick Ingram [Alan Hantz], Mass Communication

SESSION IV

Art

Session IV-A • Owen Hall 237 • 2:40 – 4:40pm • Moderator: Cynthia Canejo

- 2 :40 – 3 :00 **Being in Time and Space: Experiencing the Penomena of Perception in the Cells of Louise Bourgeois**
Rachel Inch [Cynthia Canejo], Art History
- 3 :00 – 3 :20 **Interning at the Phil Mechanic Studios and the Flood Gallery**
Emily Baker [Cynthia Canejo], Art
- 3 :20 3 :40 **Civic Humanism or Self Propaganda: The Two Faces of Medici Art Patronage**
Nicole R. Josheff [Cynthia Canejo], Art History
- 3 :40 – 4 :00 **Sense and Senselessness in Deconstruction: The Formal Assault on Space in the Works of Le Corbusier, Kisho Kurokawa, and Peter Eisenman**
Richard Seguin [Cynthia Canejo], Art History
- 4 :00 – 4 :20 **Les FI(ân)eurs du Mal and the Invisible Muses: a Gender Seesaw in Decaying Paris**
Myroslava Sokyra [Cynthia Canejo], Art History and French
- 4 :20 – 4 :40 **Creative Invention at Phil Mechanic Studios**
Meredith Zandi [Cynthia Canejo], Art
- 4 :40 – 5 :00 **Alice Neel and the Liberation of the Pregnant Form**
Tabitha Williams [Leisa Rundquist], Art

Biology and Environmental Studies

Session IV-E • Zeis 014 • 2:30 – 3:50pm • Moderator: Jennifer Ward

- 2:30 – 2:50 **Student Gains in Learning in Response to Botany Lab Module Change: Student Lead Research to Improve Learning**
Emmalie van Kuilenburg [J. Rhode Ward, J. L. Horton, H. D. Clarke, and J. McGlinn], Biology
- 2:50 – 3:10 **Assessment of Browsing of the Federally-Threatened Virginia Spiraea (*Spiraea virginiana*) by Beaver along the Cheoah River, North Carolina**
Kathryn R. Selm, [H. David Clarke, Jennifer Rhode-Ward, Jonathan L. Horton, C. Reed Rossell], Environmental Studies
- 3:10 – 3:30 **What is meant by Cherokee “traditional” ecological knowledge and who says?**
Christopher Chemsak [Oguz Erdur, Irene Rossell], Environmental Studies
- 3:30 – 3:50 **Attributes of Cover Rocks of Eastern Hellbenders (*Cryptobranchus alleganiensis alleganiensis*) in the South Mills River, North Carolina**
Paige McNeal [David Gillett], Environmental Studies

Biology

Session IV-F • Zeis 123 • 2:30 – 3:30pm • Moderator: Ted Meigs

- 2:30 – 2:50 **Identification of Regions within Galpha12 Important For Interaction with Cell Adhesion Proteins**
Kelly Kreitzburg [Thomas Meigs], Biology
- 2:50 – 3:10 **Identification of Microorganisms Cultured from Hemlock Associated Soil in Great Smoky Mountains National Park**
Danny Lammers [Betsy Wilson], Biology
- 3:10 – 3:30 **Characterizing the Interaction between Gα12 and Membrane---Associated Target Proteins**
Jonathan Manhard [Thomas E. Meigs], Biology

Psychology

Session IV-L • Carmichael 230 • 2:30 – 4:10pm • Moderator: Tracy Brown

- 2:30 – 2:50 **Reactions to Male and Female Antagonist in a Disney Animated Films and Sex Roles**
Terra Midgett [Tracy Brown], Psychology
- 2:50 – 3:10 **Pupil Dilation Responses to Suggestive Pictures as a Function of Relationship Status**
Grant Ostrander [Tracy Brown], Psychology
- 3:10 – 3:30 **Can Induction of Mood via Music Create Mood-Dependent Memory?**
Wesley McCoy, Augustus Rushing [Tracy Brown], Psychology
- 3:30 – 3:50 **Effects of Depression on Memory Recall**
Hannah Barrineau, Bryan Ragan [Tracy Brown], Psychology
- 3:50 – 4:10 **Examining the Interaction of Color and the Monetary Incentive Delay Task on Measures of Physical Arousal and Attractiveness Ratings**
Catherine Williams and JJ Morrow [Michael Neelon], Psychology

Literature

Session IV-R • Karpen Hall 113 • 2:30 – 4:10pm • Moderator: Catherine Frank

- 2:30 – 2:50 **Evelyn K. Wells and the Appalachian Folklore Heritage**
Melissa Hutcheson [Merritt Moseley], Literature
- 2:50 – 3:10 **When Voice Blurs: Community and Collaboration of the New York School of Poetry**
Gillian Logan [Merritt Moseley], Literature
- 3:10 – 3:30 **First Impressions and 18th- century Propriety in Austen’s Sense and Sensibility**
Elizabeth Milks [Merritt Moseley], Literature
- 3:30 – 3:50 **Prufrock’s Dilemma: The Modernist Approach to History and Psychology in Eliot’s “The Love Song of J. Alfred Prufrock”**

Rebecca Miller [Merritt Moseley], Literature and Language

3:50 – 4:10 **Virginia Woolf’s Relationship to Language in Fiction and Life**
Erin O’Loughlin [Merritt Moseley], Literature

Mass Communication

Session IV-T • Karpen Hall 316 • 2:30 – 3:10pm • Moderator: Mark West

2:30 – 2:50 **Culture and Communication: Identifying the Influence of Communication on Cultural Behaviors through Arjun Appadurai’s “-scapes”**
Erin M. McWhorter [Mark West], Mass Communication and Journalism

2:50 – 3:10 **Television Viewership as an Indicator of Socio-Political Misinformation**
Randall Hammond [Mark West], Mass Communication

Political Science

Session IV-U • Karpen Hall 011 • 2:30 – 4:10pm • Moderator: Ken Betsalel

2:30 – 2:50 **State by State Analysis of Education Performance of Public Schools in the United States**
Mary Johnson Phillips, Political Science

2:50 – 3:10 **The Student Nonviolent Coordinating Committee and the Conflict Expansion Hypothesis**
Kelsey Ridenour, Political Science

3:10 – 3:30 **The Effects of Gender Identity on Women in Congress**
Ashleigh Redmond, Political Science

General Poster Presentation Schedule

Atmospheric Sciences, Chemistry, Environmental Studies, Management Psychology, Physics

Poster Session I • Highsmith Union • Mountain Suites 221 – 223 • 9:00 – 10:50am

Atmospheric Sciences

Effects from a possible La Nina-influenced season

Aurelia Baca [Douglas Miller], Atmospheric Sciences

The Moist-Unsaturated Froude Number as a Precipitation Forecasting Aid during Northwest Flow Snowfall

Justin Reid [Douglas Miller], Atmospheric Sciences

Validating a New Algorithm for Wind Vector Retrieval in Tropical Cyclones

Zachary Hargrove [Christopher Hennon], Atmospheric Science

Biology

Evolution of embryonic developmental dependence in *Heterandria formosa*.

Sarah Burke (Rebecca Hale), Biology

Quantitative Analysis of Bat CT Scans

Amanda Hall [Chris Nicolay], Biology

Microhabitat of the Federally Threatened *Spiraea Virginiana* along the Cheoah River in North Carolina

Margot Wallston [C. Reed Russell], Environmental Studies

Chemistry

Mossbauer Study of Spectral Differences of BaFe₂As₂ Sample

Joshua Hall (Airat Khasanov), Chemistry

Unexpected Phase Transitions of Iron Pnictide

Zachary Stoker [John Stevens and Airat Khasanov], Chemistry

Environmental Studies

Building and maintaining a map database for use in the expansion of the Western North Carolina Report Card on Forest Sustainability

Robert Rives [Todd Pierce], Environmental Studies

Establishment of Biological Control Predators of the Hemlock Woolly Adelgid on Trees Previously Treated With Systemic Insecticide

Robert Weaver [Dr. Kitti Reynolds and Dr. Bud Mayfield], Environmental Studies

Health and Wellness

Health Behaviors of Low-income Older Adults in Asheville

Dana Sroka [Dr. Kathie C. Garbe], Health and Wellness

Management

Applying the Heuristic That Translates Unknown to Known Estimates for a Time/Cost Tradeoff at a Given Confidence Interval: A PERT CPM Case Study

Christopher J. Sorrells (Pam Freeman-King², Jimin Lee³, Claudel McKenzie¹, Linda Nelms¹, Donna Parsons¹, and Robert Yearout¹), ¹Department of Management and Accountancy, ² Budget Officer for Campus Operations, ³Department of Mathematics, University of North Carolina Asheville, Asheville, North Carolina

Service Quality in a Reduced Payroll Environment

Jack Ballard [Claudel McKenize, Donna Parsons, and Robert Yearout], Management

Mathematics

Tooting Euclid's Own Horn

Austin Blake Duckworth [Greg Boudreaux], Mathematics

Psychology

Addictive Personality

Ahamad Abuadas [Patrick Foo], Psychology

Structural Differences in the Brains of Transsexuals

Kirsten Balshaw [Patrick Foo], Psychology

Surgical Resection Techniques for Hypothalamic Hamartomas

Brittany Funderburke [Dr. Patrick Foo], Psychology

Life-threatening Effects of Ritalin and Questionable Diagnosis of ADHD in Preschoolers

Bryan Hough [Patrick Foo], Psychology

Baby Talk: Understanding Language before Speech

Jo-Anne Mathier [Patrick Foo], Psychology

The Healing Power of Music

Augusta Petrick [Patrick Foo], Psychology

Balance and the Vestibular System

Maria Daniela Pallares [Patrick Foo], Psychology

Behavioral Mimicry: Why and When We Do It

Madison Savage [Patrick Foo], Psychology

Examination of Food as a Possible Teratogen

Cassandra Slate [Patrick Foo], Biology

Understanding the Causes and Effects of Psychopathy

William Smolksi [Patrick Foo], Psychology

Developing a Neuroscience Community Outreach Program in WNC

Brandon Booker, Taylor Cole, Joseph Martin and Jesse Tanas [Patrick Foo], Psychology

Sexual Fetishism: the Extension of Sexual Pleasure

Rachel Wilder [Patrick Foo], Psychology

Sociology

Burlesque: Identity and Community

Amanda Berry [Karin Peterson], Sociology

Promoting Food Plants Native to Latin American Cultures and Nutritional Citizenship: Food for Thought Cluster Symposium

Poster Session II • Highsmith Union • Mountain Suites 221 – 223 • 11:00 – 12:50 •

Moderator: Amy Lanou, David Clarke, and Ellen Bailey

Consumers often do not fully understand the botanical, cultural, nutritional, or health aspects of foods they consume. In an effort to promote nutritional citizenship, cultural and botanical understanding of food plants and cuisines native to Latin American cultures, a symposium of 12 interactive displays created by teams of 5 to 6 students from three classes in the Food for Thought cluster will be offered. Students will provide a wide range of helpful information to consumers of food plants native to Latin American cuisines that can be used to prepare healthy nourishing meals. Biology students studying food plants will present explanations of the plant's history, origins, uses, hybrid and heirloom varieties, cultivation requirements, and the historical significance of the plant. Spanish language students will provide cultural significance, traditional recipes in English and Spanish and basic information about the food plants in Spanish. Nutrition students will identify nutritional content and disease prevention benefits of foods from the plant, offer recipe examples for healthful uses of the foods, nutritional analysis of the recipes, and suggestions for incorporating these foods into a healthy eating style. The creative, audience-appropriate and informative material offered to symposium attendees and eventually to community members interested in learning about how to healthfully prepare these foods provides an interdisciplinary approach to promoting informed consumer choices about Latin American food plants, nutrition, and health promotion.

Vanilla Bean Healthier than a Jelly Bean

Mary Beale, Bobby Castro, Dylan Auman, Miriam Allison, Samantha Atkinson [Amy Lanou, David Clarke, and Ellen Bailey]

The Food of the Gods

Ginger Buchanan, Madison Davis, Tony Cammareri, Gabrielle Campiformio, Anna Brown [David Clarke, Ellen Bailey and Amy Lanou]

I've "Bean" Missing You: How Adding Beans to Your Diet Can Improve Your Health

Laura Gardner, Blane Garrou, Meredith Greene, Megan Hawthorne, and Lyndsey Henderson [Ellen Bailey, David Clarke, and Amy Lanou]

Cilantro: It's More Than Just Salsa

Simon Haake, Nelia Hamby, Rhiannon King, Ed Heidel, Sarah Rybacki, Natalie Hoge [Amy Lanou, David Clarke, Ellen Bailey]

La Patata Poderosas: The History, Origin and Nutritional Value of Potatoes

Carolyn Island, Holly Newton, Maria Olson, Rebecca Smith, Ben Survant, Marcus Southern [Ellen Bailey, David Clarke and Amy Lanou]

Squash: The Wonder Vegetable

Kaitlyn Laughter, Shelby Lott, Amy Jolly, Sarah Hinson, Kathryn Hannah, Jessica Lusk [Amy Lanou, David Clarke, Ellen Bailey]

The Tomato: A Fruit Strange and Wondrous

Morgan McCarty, Tiffany Narron, Kelli Riles, Valerie McMurray, Kalie Nattinger, Sarah Reece [Amy Lanou, David Clarke, and Ellen Bailey]

Holy Guacamole: The Avocado is More than Just a Dip

Heather McGaha, Jessica Lynch, Stefanie McKinley, Ann Hyett, Elizabeth Manning, Trent Meyer [Amy Lanou, David Clarke, and Ellen Bailey]

Guavas: Nutritional and Cultural

Cecelia Thomas, Audrey Weinbrecht, Melissa Weller, Camille Wick, and David Wood [Ellen Bailey, David Clarke, and Amy Lanou]

Los Tomatillos Fantásticos

Courtney Trafford, Stephanie Tullos, Brandy Thrasher, Jenny Siegrist, Brittany Steiner, and Laura Stickels [Amy Lanou, David Clarke, and Ellen Bailey]

No Hay País Sin Maíz: There is No Country without Corn

Maddy Baringtang, Monica Beebe, Danielle Boyer, Colleen Bustos, Whitney Campbell [Ellen Bailey, David Clarke, Amy Lanou]

Chiles: A Latin American Fruit with a Bite

Lara Cantrell, Amelia Cole, Jenatha Craven, DJ Cunningham, Grace Didenko, Aries Druckenbrod, Mason Earp [Ellen Bailey, David Clarke, Amy Lanou]

Political Science

Poster Session III • Highsmith Union • Mountain Suites 221 – 223 • 1:00 – 2:50 pm

Moderator: Linda Cornett

Sharon Baker - Peru

Ryan Blackmon - Panama

William Carrington - Colombia

Gabriel Deschamps Saiz - Colombia

Katja Greeson - Bolivia

Madeline Jaekle – Ecuador

Carmita Cordova - Ecuador

Samuel Moser - Venezuela

Marius Pfléghar - Chile

Natalie Chevalier - Haiti

Benjamin Willis – Dominican Republic

Chemistry

Alternative Osteoarthritis Treatment: An Examination of Glucosamine and Chondroitin

Daniel Moore [Noah Allen], Chemistry

Binding Quantification and Qualification of 2-(benzylhydriylsulfinyl)acetamide to 5-Hydroxytryptamine Receptor 1A Subtype

Charlotte Bissette [Noah Allen], Chemistry

Solid State Isotopic Exchange in Cobalt Complexes

Brittany Funderburke [Jason Schmeltzer], Chemistry

Studies of Modafinil in relation to the Dopaminergic Receptor and the Dopamine Neurotransmitter, in Silico

Kenneth Huang [Noah Allen], Chemistry

Simulated Dockings of Modafinil into the Dopamine 1 Receptor

Lyle Lawrence [Noah Allen], Chemistry

Synthesis of Novel Tri-Methyl and Methoxy Indole Based *cis*-Combretastatin Analogs

Ben McDonald [Herman Holt], Chemistry

Processed Food: Iron and Calcium Content as Determined by Atomic Absorption Spectroscopy

Margaret Spellman [Sally Wasileski], Chemistry

A Structural Study of the Superconducting Parent-Compound BaFe_2As_2

Justin Thompson [Amar Nath], Chemistry

Investigation of 1,2-FCI Halogen Interchange and Unimolecular Elimination for $\text{CF}_3\text{CHFCH}_2\text{Cl}/\text{CH}_2\text{FCHClCF}_3^*$, $\text{CH}_3\text{CHFCH}_2\text{Cl}/\text{CH}_2\text{FCHClCH}_3^*$, and $\text{CH}_2\text{FCH}_2\text{Cl}/\text{CH}_2\text{ClCH}_2\text{F}^*$

Mary Kate Tucker [George Heard], Chemistry

Surveying the Effectiveness of Supplemental Instruction in General and Organic Chemistry Courses

Arielle Vertuoso [Jason Schmeltzer], Chemistry

Environmental

Trace Metal Residues near the CTS Superfund Site in Asheville, North Carolina

Georgia Lee Tryon [Jeffery Wilcox], Environmental Studies and Chemistry

Trichloroethylene (TCE) in Tree Rings near the CTS Superfund Site

Kathy Johnson [Jeffery Wilcox], Environmental Studies

Developing a Hydrologic Model to Better Understand the Conditions Supporting a Population of Endangered Green Pitcher Plants

Emily Bradshaw [Jeffery Wilcox], Environmental Studies

Stormwater Quality at A Low Impact Development (LID) Best Management Practice (BMP) Demonstration Site in Mars Hill

Carl Larson [Jeffery Wilcox], Environmental Studies

Abstracts Oral and Poster

Addictive Personality

Ahamad Abuadas [Patrick Foo], Psychology

Addiction is an interesting phenomenon that doesn't affect all people equally. Psychological dependence has been defined as a compulsion to use a drug to produce pleasure or to avoid discomfort, despite negative consequences. This definition encompasses all internal (e.g. the addictive personality) and external factors that contribute to a psychological state acquired over time to relieve stress. It is interesting to note that along with drug abuse; often times illnesses such as anorexia and bulimia manifest themselves in patients that display signs of addictive personalities. But what about harmless activities that people enjoy doing? Are they addictive? Do the same brain areas that support negative addictions enable positive ones? Is this what defines an addictive personality? Should the concept of addiction be reevaluated to include activities that are not negative, opening the possibility of erasing the stigma associated with the word addiction?

Processing of Race and Stereotypes in Job Applications

Ebony Allen and Chioma Okoli [Tracy Brown], Psychology

We studied hiring preference and decision making in a simulated employment setting. Participants were asked to read job application materials for a high-level job (attorney in a law firm), a medium-level job (a bank teller), and a low-level food service job, and to answer questions concerning the reliability, integrity, professionalism, and overall suitability of each candidate for the job in question. Candidates were arranged in pairs with one having a first and last name that sounded African-American and one that was more typical of a Caucasian first and last name. The names for each application or resume were switched across participants such that overall qualifications were the same. Analyses were designed to measure the relationship between apparent race of job candidates and assessments of reliability, integrity, and professionalism, and to test whether the type and prestige level of the job being applied for modulated that relationship. We are expected to have at least 60 participants, since each participant will only see one job level instead of all three job levels. So far we have conducted research with 17 subjects and the majority of them (11 vs. 6) have chosen the candidates with the African-American first and last name.

Unemployment: The Labor Force and Stigma

Miriam Allison [Alan Hantz], Mass Communication

As early as 1349, society viewed the unemployed as 'social parasites' living off of others and avoiding work. Within the framework of Darwinism, society considers the unemployed to have hereditary weakness preventing them from attaining jobs due to lower mental type. We still stigmatize the unemployed today based on the early 20th century Protestant work ethic; work is morally right and those that do not work are morally wrong. This stigma still follows the unemployed despite the diminished job availability due to weak labor demand and the current rate of job cuts. With people starting to work at a younger age and older people working longer, the United States labor force is so large that the unemployed stay unemployed for longer lengths of time. According to the Bureau of Labor Statistics, there is a slight decrease in the percentage of unemployment since December 2010. This decrease is deceiving because it is not due to an increase in jobs but because of dropouts from the labor force (defeated during their job search), as well as underemployment (part-time workers seeking full-time work). The goal of this presentation is to show through interviews how economic aid recipients of Western North Carolina deal with the struggle of unemployment and overcoming the judgmental stigma attached. The report will also put into perspective the unemployment rates and labor force of North Carolina in juxtaposition to the United States.

Enacting Pachacutí: The Play *Tragedia Del Fin De Atawallpa* and Its Background

Erica Anderson [Elena Adell, Great Trautmann, Alice Weldon], Spanish Language

This quechua language colonial play developed from the rich oral literary tradition of the Andes. Its classic form, called wanka (or huanca), is a sort of solemn invocation, almost a lament or elegy, for an important figure. Reproduced in various versions in villages throughout both Peru and Bolivia during the colonial era, it remains present in some annual festivals today. One manuscript version from Chayanta, dated from the end of 19th century, has become the best known. The sentiment of pachacutí, a pre-Columbian communal conception of cyclical time as beginning and ending in great upheavals, strongly influences this play. It also contains subtle allusions to a messianic myth, called Inkarrí, developed in the Incan culture after the conquest. The fact that this version was recorded in a time of upheaval, right after the South American independence movements, and translated in a likewise unsettled period

in Bolivia after the Chaco War and published just five years after the 1952 Revolution, correlates to the continued resonance that pachacutí, as it is embodied in the play, has had in the cultures of the Andes.

Coming to Political Space in Antigone

Abigail Ariesti [Ken Betsale], Political Science

This paper explores the nature of politics in Sophocles' Antigone. The paper makes the unconventional argument that political space is the intersection between public freedom and the authority of private necessity. Traditionally, politics has been defined as occupying a separate space from the household, using Antigone we shall see the connection between the values of kinship and the ordering of the state. In this analysis Creon, the ruler of Thebes and the uncle of Antigone, represents the authority of the autocratic state (one-man rule); while Antigone, the daughter of Oedipus and sister of Polyneices, represents the unexamined and orthodox commitment to the authority of custom and tradition. In the conflict between these two opposing and unyielding forces is where the nature of Athenian tragedy teaches the audience the importance dialectical politics in which democratic solutions might be found. In Antigone, Haemon, the son of Creon and the intended spouse of Antigone, represents the space of politics between these two spheres, but his fate too is tragic as compromise cannot be found. The irony of the play is Antigone's seemingly dogmatic character and commitment to the custom of the private sphere is the foundation for her courage to enter the public sphere to make her case. Also Creon's monolithic authority leads his own ideological version of private space that does not take into account the possibility of diversity of interests in the private realm. Taken as a whole, the play shows the power and the necessity of speech and self-conscious action in the creation of meaningful political space in a democratic society.

Edvard Munch and Gustav Klimt: Contradictions in the Representations of Women

Kathryn Armstrong [Cynthia Canejo], Art History

The basis of this research will revolve around the turn of the twentieth-century artists Gustav Klimt and Edvard Munch. For each artist, the female form is the main subject matter of the majority of their artworks. These artists paint womankind in a negative and misogynistic light which was common throughout their time period. Klimt and Munch not only relied on women as inspiration and subject matter for their works of art, but they also depended on them for living day to day life. Even though the two men recognized that society was interested in the story of the femme fatale present in their lives and works of art, without the presence of women in their lives both of the men would have been unsuccessful. This

research will follow the lives of both artists and how their biography shaped their beliefs to be anti-feminist focusing on the works *Vampire*, *The Death of Marat*, and *The Kiss* by Edvard Munch as well as Gustav Klimt's paintings *Judith 1*, *Portrait of Margaret Stonborough-Wittgenstein*, and *The Kiss*. These works of art illustrate the artist's viewpoints of women and help reinforce biological evidence of misogyny in the artist's lives.

The Frustration-Aggression Hypothesis: How Fair and Unfair Competition Affects Aggression

Molly Austin [Tracy Brown], Psychology

Dollard, Doob, Miller, Mower, and Sears developed the Frustration-Aggression Hypothesis in 1939, which says that frustration will "...lead to aggression if the aggressive behavior helps to eliminate the frustration." Using a video game competition, this hypothesis was tested to see if fair and unfair conditions increased participants' self-reported aggression levels. Three conditions were used, an "advantaged" condition where game set-up favored the participant, a "balanced" condition that was essentially fair, and an "impossible" condition which was obviously unfair and unwinnable. Across these three groups, aggression from pre- to post-test increased 0.1 (on a 1-10 scale) for the advantaged group, by 1.0 in the balanced group, and by 1.46 in the impossible condition. Though the interaction of pre-test to post-test change and group was not statistically significant, overall increase in aggression at post-test was marginally reliable, $F(1,28) = 4.71, p = .051$. Increased levels of aggression in the neutral condition would be attributed to the amount of effort put into a fair competition and not coming away with a win. If statistically reliable, the aggression increase in the impossible condition would have been a reflection of the unfair nature of the competition, which the participant had no chance of winning.

Falling Risk

Christina Ayers [Lori Horvitz], Creative Writing

Effects from a possible La Nina-influenced season

Aurelia Baca [Douglas Miller], Atmospheric Sciences

The Climate Prediction Center announces La Niña will affect the weather patterns in the United States for the upcoming winter season. La Niña typically causes drier conditions and warmer temperatures than normal in the Southeast. This is the standard generalization applied for every La Niña, which guided the decision of the weather-related parameters to study. Specific parameters that will be examined to search for differences between La Niña-influenced winter seasons include: sea surface temperatures over the equatorial Pacific, storm tracks, temperature, precipitation, and

snowfall observations in western North Carolina. A comparison of previous La Niña-influenced winter seasons to the 2010-2011 winter season for western North Carolina has indeed affirmed that no two La Niña's are alike. Topographic Influences and a lack of observations make predicating the amount of snowfall in the mountains a significant challenge. Adding the influence of La Niña makes meteorologists all the more uncertain of what to expect. By investigating more observations and, ultimately, a better understanding of the variable behavior of La Niña, this study is designed to illuminate current misconceptions, which should result in more accurate snowfall forecasts for western North Carolina.

Effective short-term effects of arts therapies for Traumatic Brain Injury (TBI) patients

Anna Baker [Tracy Brown], Psychology

This study was designed to assess the effectiveness of expressive arts activities on mood and well-being in patients living with, and recovering from, traumatic brain injury (TBI). Participants were members of an innovative day program for TBI patients who had been placed in, and agreed to participate in, the expressive arts activities. A brief, self-report mood inventory was administered following each of four expressive arts sessions -- a writing exercise, a drama exercise, an art exercise, and a (chair-based) yoga exercise. Mood scores following each of these sessions were tested against control scores on the same instrument at the same time of day using days where these activities were not scheduled. It is predicted that the exercises involving self-expression and yoga-based physical activity will increase feelings of well-being and improvement of mood relative to days on which these activities did not occur. If effective, expressive arts activities would be a useful and beneficial addition to the cognitive and medical aspects of treatment in patients who are coping with and recovering from TBI.

Presenting the Freak: The Photography of Charles Eisenmann

Emily Baker [Cynthia Canejo], Art

Little is known about Charles Eisenmann, yet his studio portraiture of freak show performers in the nineteenth century has informed our visual recognition of disabled and/or exoticized bodies during this time period. In collaboration with the managers and performers, his photography presented as documentary has shaped our understanding of his reality and contemporaneous cultural mores through the representation of the body that departs from "normal" expectations. In the nineteenth century freak show environment, one would

have been encouraged to gawk at that which was perceived as different or even grotesque. The term "freak," used in this context to signify a person whose body deviates from the "expected" form, was socially constructed by the dominant "norm" which dictates the terms of inclusion and exclusion in society. The medium in which Eisenmann worked and the way in which it was easily manipulated to actuate an agenda was of particular importance to his subjects and the social construction of their identities. This research uses the contemporary lens of disability theory to view Eisenmann's portraiture in the context of freak show and photographic history which will allow for an examination of constructing the "other" in various art historical contexts.

Interning at the Phil Mechanic Studios and the Flood Gallery

Emily Baker [Cynthia Canejo], Art

When one thinks of interning, stereotypically one might think about a fresh faced kid running around taking coffee orders and staying on the periphery of experience. This, of course, is not interning! The Phil Mechanic Studios offers a plethora of live action, non-coffee fetching adventures in various aspects of studio art and non-profit arts center working. There are several different studios and mediums umbrellaed within the old River district warehouse space, which picturesquely overlooks both the incessant rushing of the French Broad River and the wondrously antiquated train tracks. It is a ripe setting for stories and experiences, and for a burgeoning community of artists and art enthusiasts to congregate, exchange ideas, and work together. Whilst interning, one has the opportunity to practice archiving skills, organize the library collection, learn how to hang shows and patch and repair gallery walls, set up for art openings and private functions, interact with working artists, read about and research arts grants, and propose new project ideas which would enhance or benefit the operations of the building. If one is interested in working in a non-profit community oriented setting in which one is expected to creatively problem solve, intern at the Phil Mechanic Studios!

Stimulus Characteristics Affecting the Auditory Motion Aftereffect

John Baley, Abigail Ruffle [Michael Neelon], Psychology

There are two prominent theories which describe the means by which the brain processes auditory motion. The first, often called the snapshot hypothesis, holds that certain cells are sensitive to the points in space where a sound begins and ends. In the snapshot theory motion is inferred from the relationship between the cells activated by the start and end points of the sound. A second theory holds that high-level neurons that respond

especially to a sound moving across a spatial range are the means by which auditory motion is perceived. Repeatedly presenting a unidirectional moving sound source (the adaptor) can induce an auditory motion aftereffect (aMAE) in which subsequent slightly-moving probes are often judged to move in the direction opposite the adaptor. The following experiments vary several stimulus parameters in order to test whether true auditory motion neurons exist and contribute to the aMAE. These parameters include the resolution of adaptor motion from saltatory to continuous, the interstimulus interval (ISI) between repeated adaptors, and the spatial range of test stimuli motion. Stronger aMAEs for adaptors with more continuous motion or longer ISIs, or for test stimuli across the adaptation range, may support the existence of specialized auditory motion neurons.

Service Quality in a Reduced Payroll Environment

Jack Ballard [Claudel McKenize, Donna Parsons, and Robert Yearout], Management

This two phased study was conducted in a retail pharmacy company's stores in Western North Carolina. The purpose of this study was to examine the impact of the reduction of store staffing, primarily pharmacists and service staff, on customers' satisfaction with service time. In the first phase of the research data was collected to calculate customer arrival rates and services times for each queue. This information was then used to perform a queuing analysis to determine the optimal staffing for each queue. In the second phase of the research study a face to face random survey of customers was conducted in multiple store locations to determine customer perceptions of service in the immediate community. Analysis of those survey results determined that over 30% of the customers surveyed were dissatisfied with their total service time. Further, a regression analysis of the data demonstrated that there was a significant linear relationship between total service time and customer satisfaction. Results of the queue analysis and customer surveys indicate that cutting staff may result in an unacceptable loss of a competitive advantage over other area pharmacies. Thus reducing staff hours to increase efficiency and control payroll costs in the short term will negatively impact long term effectiveness through greater lost revenue dollars for these stores.

Structural Differences in the Brains of Transsexuals

Kirsten Balshaw [Patrick Foo], Psychology

While a great majority of people would say that their sex and gender are one and the same, a small percentage of people feel that their physical bodies (sex) do not match their culturally-defined gender. People who experience this occurrence are transsexuals or transgendered.

Transsexualism is currently viewed as a purely psychological or mental disorder. But is transsexualism solely psychological? Several recent studies suggest that there are physical and biological reasons behind transsexualism. Transsexualism may begin during gestation with abnormal levels of hormones that differentiate one's sex organs. Additionally, one may observe structural differences in adult brains of transgendered people versus their typically male or female counterparts. One specific area where this has been found is the bed nucleus of the stria terminalis (BSTc) in the ventral thalamus. This poster will explain and examine the biological and anatomical differences that are associated with transsexualism.

No Hay País Sin Maíz: There is No Country without Corn

Maddy Baringtang, Monica Beebe, Danielle Boyer, Colleen Bustos, Whitney Campbell [Ellen Bailey, David Clarke, Amy Lanou]

Corn originated in central Mexico and is part of the grass family Poaceae. The cultures of central Mexico consider themselves to be the "people of corn" because corn is so vital to heritage and culture. It was discovered in this region that corn could be soaked in a lime solution and this would make it easier to grind and allow for nutrients to be better absorbed. Today corn (maize) provides nearly 21 percent of human nutrition worldwide. Corn provides phosphorus, magnesium, zinc, copper, and niacin to diets. Magnesium and niacin are essential in aiding digestion and boosting nervous system functions. Mexico has the most varieties of corn in the world. It is easy to develop hybrid varieties of corn that allow it to be used for livestock feed, energy use, and human consumption. The focus of this presentation is to educate people about the history, culture, and nutritional facts about corn. With helpful handouts and recipes, people can make informed decisions about what they eat.

Empathy is Queer: Dissections of Utopian Visions in Queer Film

Jacob Barker [Lorena Russell], Honors Special Topics: Queer Films

In his book, *The Empathic Civilization: The Race to Global Consciousness in a World in Crisis*, economist and activist Jeremy Rifkin outlines his theory of what an "empathic civilization" might look like as a substitute for our competitive, divided society. Empathy, he says, is the opposite of utopia, because empathy depends on people being able to identify with another's suffering and struggles. Utopian visions of perfect societies would be devoid of most forms of suffering, and, as such, would be impossible grounds for empathy connecting people through shared struggles. He outlines the development

of loyalty and identification through history, beginning with tribal and blood ties, expanding to people of a single religion identifying with each other, to the "fictions" of nation-states tying people of particular geographic and cultural identifications together. He argues that with this expansion in identification with others, the next step must be a global consciousness in which people transcend the invisible boundaries of nation-states to identify with each other as members of one race of humans on this planet. Exploring conceptions of utopia in queer film, one can view utopian films through a critical lens to see how certain films suggest connection through empathy and reveal the depths of their characters through their intersecting identities, shared with others, and how other films rely on a utopian ideal to entertain audiences hungry for images of a world completely unlike ours. The queer ethos emerging today in so many cultural forms can benefit from Rifkin's research and insight, and protect itself from self-destruction or reification as just another identity label to be wielded in the name of security and separation. Employing various established theories and research in the field of queer theory, we will investigate how identity politics and sexual politics may be seen as empathic, divisive, or utopian through film, how queer identifications can be expansive, and why identity movements on the one hand seem to be limited in their potentials for creating a more integrated, tolerant society in general, and on the other seemingly must run their course for fledgling communities of identification to assert their presence and politics to affect basic social and legislative change.

Effects of Depression on Memory Recall

Hannah Barrineau, Bryan Ragan [Tracy Brown], Psychology

The literature on depression has established that it severely affects memory. The literature is, however, fairly inconsistent with the exact effect that occurs. One of the primary inconsistencies is that the emotional quality of the items to be remembered differs from study to study. In order to further examine this variation, this study attempted to measure the relationship between measured depression and short-term recall memory for items with positive, negative, or neutral emotional valence. Participants studied three sets of word lists, each list consisting of positive, negative, or emotionally neutral words, for 30 seconds, followed by immediate recall. Overall accuracy of recall and the occurrence of false recall intrusions were measured as a function of list type and Beck Depression Inventory (BDI) scores. Analysis revealed that BDI scores failed to predict recall performance across lists, the occurrence of intrusion errors, and overall memory performance. The absence of reliable effects may suggest that the relationship

between depression and memory performance may be more strongly expressed in long-term memory than in short-term memory.

The Cramer Effect

Stephen Bava [Chris Bell], Economics

This paper seeks to answer the question of whether or not Jim Cramer from CNBC's Mad Money causes volatility in stock prices. This topic is interesting because it provides insight into how Cramer's picks perform. A market index will also be used to compare Cramer's picks with the market.

Las Mujeres Suicidas: Ejemplos de Storni y de Burgos

Larren Beach [Elena Adell, Greta Trautmann, Eric Gant], Spanish

The word suicide typically brings to mind a dark and somber type of thought. However, through my literary research of works by Alfonsina Storni and Julia de Burgos, I have found that reflections on suicide described in the poetry of these two women take on a serene and organic feel. The purpose of this paper is to analyze "Dolor" and "Voy a dormir" by Storni as well as "Poema para mi muerte" and "Farewell in Welfare Island" by de Burgos. In doing so, I hope to provide a better understanding of how these two women portray the act of suicide in their poetry as well as how they represent death and dying from a female perspective. Because both of these poets wrote the majority of their work in Spanish, my research and paper will be done in Spanish as well.

Vanilla Bean Healthier than a Jelly Bean

Mary Beale, Bobby Castro, Dylan Auman, Miriam Allison, Samantha Atkinson [Amy Lanou, David Clarke, and Ellen Bailey]

Vanilla is found in Honduras, El Salvador, Guatemala, Costa Rica, Mexico, Panama, Paraguay, and Nicaragua. Vanilla is an orchid and is grown on tree trunks. It is then left for 6 to 9 months on the tree trunks in order for the fruit to ripen. The pods are then harvested and placed in the sun to dry out. Afterwards, the pods are wrapped tightly in blankets and placed in dark airtight boxes to sweat the vanilla out. It usually takes 15 days of sweating to fully curate the pods, which are when the bean turns brown and the extract of vanillin is produced. Vanilla is thought to have many health benefits. It contains vanillin, which is thought to help with some neurological diseases such as Alzheimer's and Parkinson's because it contains high levels of antioxidants. Vanilla also contains small amounts of minerals such as calcium, magnesium, potassium, manganese, iron, and zinc. Vanilla, traditionally used in

desserts including flan, arroz con leche, and queque de tres leches, adds flavor and sweetness along with these beneficial nutrients.

Subjectivity and Voice in Documentary Film: Making the Lens Visible in Paris Is Burning

Kristina Bender [Lorena Russell], Literature and Mathematics

Two documentary films that feature the lives of gay men of color, Jennie Livingston's *Paris Is Burning* (1990) and Marlon Riggs's *Tongues Untied* (1989) complicate the role of the director and participation of the viewer. As both expose similarly marginalized groups of people but through very different creative means, the two films raise interesting questions about subjectivity, power, and identity. For example, is Riggs's work more acceptable because he films black gay men like himself, whereas Livingston, a white lesbian, is an outsider relative to the subculture she films? How do the style and structure of the films implicate or ignore the viewer? In the territories of contested access that are these films, could audiences reconcile their voyeuristic or complicit posture with awareness and good intentions? Although scholars criticize Livingston's work as an insensitive, self-authorized commodification of otherness, a close reading of *Paris Is Burning*, complemented with connections to *Tongues Untied*, reveals that her film catalyzes discourse and privileges voice more than it affects silence or subordination.

Hitchcock's MacGuffins: Depicting the Nature of Narrative

Sara Bernardi [Virginia Derryberry, Robert Tynes], Art

Though the impression of a plot, or implication of narrative can be captured in a single moment in time, a plot cannot develop without a coinciding progression of time. The artist of this series of work goes beyond a single moment to examine ways in which narrative can be depicted in a series of moments inviting the viewers to become active participants in putting together the pieces of the story through animation, sculpture and sequential paintings and drawings. Using a device developed by Alfred Hitchcock intended to trigger the plot, this series is focused around a contraption created by the artist, based on the mechanical inventions of cartoonist Rube Goldberg. The contraption references the structure of a linear narrative as the actions can be compared to the developments that make up a plotline, with one event triggering the next. Looking to techniques used in film and comics, as well as contemporary artists such as Alex Kanevsky, Patricia Bellan-Gillen and Gregory Crewdson, the artist attempts to deliberately leave aspects of the work unfinished, creating an interactive experience that invites the viewer to

participate and come to their own conclusions and personal meaning.

Burlesque: Identity and Community

Amanda Berry [Karin Peterson], Sociology

Using thirteen in-depth interviews with women who perform or have previously performed burlesque, this study examines the lives of participants in the recent revival of burlesque theater. Contemporary burlesque incorporates dance, vaudeville, comedy, and other modern art forms with classical burlesque, which peaked in the 1920s and traditionally focused on the performance of striptease and eroticism for exclusively male audiences. This paper argues that positive experiences in burlesque create an environment that fosters positive changes and connections with others for women performing burlesque. The research also seeks to articulate how the current Neo-burlesque movement contributes to the cultural paths women use to understand, express, and rework their identities. As such, this work will articulate both an interpretive and critical framework for understanding the cultural work and meanings of burlesque. Additionally, this study also explores the relationship between the lived experiences of burlesque performers and the current feminist discourse surrounding burlesque and similar activities, such as exotic dance and performance art using the nude female body.

Binding Quantification and Qualification of 2-(benzylhydrilsulfinyl)acetamide to 5-Hydroxytryptamine Receptor 1A Subtype

Charlotte Bisette [Noah Allen], Chemistry

2-(benzylhydrilsulfinyl) acetamide, more commonly referred to as Modafinil, is a drug previously used to treat narcolepsy. More recently, in case studies, Modafinil's effects have been shown to alleviate all symptoms of bulimia, an eating disorder. This research quantifies Modafinil's binding intensity using Scatchard Analysis in order to determine its disassociation constant when bound to 5-Hydroxytryptamine 1A receptor (HTR1A). PC12 cells, a cell line derived from a rare tumor (pheochromocytoma) in adrenal gland tissue from the adrenal medulla of a rat brain, were transfected via a lipid-based transfection method, with the cDNA of HTR1A. The cells were co-transfected with green fluorescent protein (GFP) to determine the efficiency of transfection. After isolating the plasma membrane, containing the correctly folded protein, from the cell, the optical density of the membrane-bound receptor was determined with UV-Vis spectroscopy and aliquoted for Scatchard Analysis. The results of the Scatchard were compared to a known selective HTR1A agonist, 8-Hydroxy-N,N-dipropyl-2-aminotetralin (8-OH-DPAT), whose binding intensity was determined using the same

transfection and quantification methods. In order to qualify the results of the Scatchard and ensure Modafinil was indeed binding to the integral membrane receptor, indirect immunofluorescence microscopy was utilized. In this procedure, the cells remained intact after co-transfection of HTR1A and GFP. The Modafinil compound was conjugated with a fluorescent hydrazide probe that excites and emits at a different wavelengths than GFP. Therefore, the location of the tagged Modafinil compound can be revealed and compared to the location of the HTR1A gene by switching the microscope lens to absorb the respective excitation wavelengths.

Up for Interpretation: Creating a Photo-Graphic Novels and the Tale of Jasper Collins

Shalamar Blevins, Allison Greenfield [Mark Koven, Eric Tomberlin], Art

Everyone has their own way of telling a story, their own point of view. This can lead to a range of stories including extremely tall tales, simplified plots, and washed-down synopses. Much like when one reads a piece of literature, the author tries to create imagery for the audience by describing the necessary details through their text. However, it is the audience's comprehension of those details that fully evokes the story in constructing their own edition based upon their own unique interpretations. What are the important details in constructing a story such as characters, the time of day, and the environment? What information is hidden beneath the surface and are there details or relationships that can heighten the mood and depth of the narrative? Instead of being given words, what if the story were merely images? In my research I want to explore how a viewer chooses to interpret a visual story created through photographs and how the visual details translate into constructing a narrative.

Theory of Mind and Language in Aging Adults

Ashton Bode, Taylor Cole, Erin Greger, Julia Rooks, Brittany Steiner, Jenna Stunkard [Melissa Smith], Psychology

As most Theory of Mind (ToM) studies focus on children, there is a growing need for research how ToM changes over the lifespan. The present study is part of a larger effort to better understand the relationship between language, ToM, mood, social support, age, and cognitive executive functions (EF). Here, we examine the relationship between language, age, and ToM tasks in monolingual English speakers, aged 55 or older, with no known dementia, in order to discover if language skills predict ToM in adults, as they do in preschoolers. Participants were given two verbal (comic strips, Strange Story) and one nonverbal (Reading the Mind through the Eyes) ToM task as well as a language measure to

assess their understanding of complex grammatical clauses. Findings of this study will contribute to our understanding of how ToM changes over the lifespan, and the extent to which language influences one's ability to take multiple perspectives in later adulthood.

Effects of Pond Drying on Population Density of Amphibian Species in an Ephemeral Pond

Brandon Booker [James W. Petranka], Biology

Many amphibians breed in transient environments such as ephemeral ponds where larvae survival is influenced by predation, competition, and pond drying. Ecologists frequently use mesocosms and field enclosures to study competition and predation in pond communities, and it is critical that researchers use realistic densities of amphibians to study these density-dependent phenomena. Although the sizes of seasonal ponds often change markedly as they undergo seasonal drying, little quantitative data are available on how densities of amphibians change seasonally. Such data can be helpful in designing more realistic ecological experiments. I sampled amphibian populations in a seasonal pond in Asheville, NC, every two to three weeks from April 29 to July 5 (2010). Resident amphibians included *Ambystoma maculatum*, *Ambystoma talpoideum*, *Pseudacris crucifer*, and *Notophthalmus viridescens*. On every collection date I measured pond surface area and estimated larval densities. From these data I documented the change in population densities and population size over the pond hydroperiod. Changes in seasonal densities varied markedly depending on species-specific mortality rates and length of the larval period. These data suggest that seasonal changes in density are highly dynamic in natural ecosystems and may be difficult to simulate in mesocosm and field enclosure experiments.

Developing a Neuroscience Community Outreach Program in WNC

Brandon Booker, Taylor Cole, Joseph Martin and Jesse Tanas [Patrick Foo], Psychology

Educating young students about neuroscience can be difficult, and is extremely rare in elementary and middle schools, especially in Western North Carolina. We have developed a classroom program that informs young students about neuroscience topics in an engaging manner, to generate ongoing interest in the field. Our program educates students on the topics of muscle memory, smell, and attention. This program is also designed to develop our own abilities to teach and present topics, benefit our own learning, and provide us with community outreach skills. We will give a presentation at a junior high school campus that introduces each topic through lecture and demonstration. This symposium talk will summarize our

experiences as they relate to Neuroscience in WNC, and within the broader national Society of Neuroscience Brain Awareness program as a whole.

Bolivia

Ismael Borges [Alice Weldon], Spanish

The 2011 Experiential Learning Study Abroad trip to Bolivia was a learning experience that will impact the rest of my life (and that of the other students). We had the privilege of connecting what we were learning in the classroom, such as language, literature, history, economics, politics and environmental sciences, to the real and current Bolivia. During this trip we had the opportunity to ask native Bolivians about where they believe the government of Evo Morales is taking the country and if they believe that the economy of Bolivia is improving. We also got to learn from them about the differences between la Media Luna and the Altiplano, and the fight of Santa Cruz for autonomy. Like many Latin American countries Bolivia has a big problem with poverty and, as a consequence, problems with illnesses that were eradicated or controlled a long time ago here in the USA. Fortunately they are getting help from the Consejo de Salud Rural Andino, a non-governmental, non-profit organization that has three clinics there in Montero and offers preventive and primary care to more than 40,000 people, helping to fight killers such as cholera, tuberculosis, malnutrition, and diarrhea.

Developing a Hydrologic Model to Better Understand the Conditions Supporting a Population of Endangered Green Pitcher Plants

Emily Bradshaw [Jeffery Wilcox], Environmental Studies

Eller Seep is a small mountain bog located in Clay County, North Carolina. It is home to a rare and endangered species of green pitcher plant (*Sarracenia oreophylla*) and is managed by The Nature Conservancy, who purchased the site in 1988 and is committed to preserving the pitcher plants. Recent upslope development could impact groundwater flow at the site, possibly endangering the plants, which flourish in the saturated soils of the bog. Water level data from across the site has been collected since 1996. These data were recently processed, to create hydrographs showing water elevation at each well over time. Future plans for this study include installing and monitoring new wells, collecting new well-log data, conducting slug tests to determine hydraulic conductivity (K), and installing and monitoring data-loggers. The primary objective of this project is to develop a groundwater flow model of the site to determine the recharge zone, and simulate the effects of development and drought. With the information from the groundwater flow model, we hope to better understand the hydrology of the site, allowing The

Nature Conservancy to make more informed management decisions to protect the pitcher plants.

"I saw the face of God": The Grotesque as the Mode of Religious Discussion in O'Connor and Country Gothic Music

James Brooks [Erica Locklear], Literature

For American Southern writers, particularly those interested in the grotesque, religion has been a topic of interest. Flannery O'Connor may be said to be the chief exhibitor of the intersection of grotesque and religion. Recently, a musical genre with names such as "country gothic" and "dark roots" has emerged, with themes similar to O'Connor. Through close reading of the O'Connor short stories "The River" and "Revelation," as well as examinations of the lyrics and music of the "gothic country" bands *Those Poor Bastards* and *Sons of Perdition*, this research will examine the ways in which the grotesque is used and the purpose it has in commenting on Christianity in the American South. By using historical and sociological texts, as well, this research will describe how Southern Christianity has changed and explore the corresponding change in the form of the grotesque to better translate a message. By combining these ideas, this research will highlight the inseparable bond of the grotesque with Southern Christianity as practiced by Evangelists and Fundamentalists as well as why O'Connor, *Those Poor Bastards*, and *Sons of Perdition* are preoccupied with the reality of this bond.

Post-war Guatemalan Narrative: A Comparison of the Novels of Ronald Flores and Javier Payeras

Hugh Browder [Elena Adell], Education and Spanish

For young Guatemalan authors, the signing of the peace accords in 1996 that ended nearly four decades of internal armed conflict between Marxist guerrillas and a series of right-wing governments, marked a before and after. Literature during the war was profoundly shaped by Cold War era political debates and the threat of violence. The democratic opening, presented the opportunity to write free from those constraints. In the hands of young writers, narrative became a manifestation of the opportunities provided by democracy, reflected in the heterogeneity of narrative strategies and subject matter. Two authors, Ronald Flores and Javier Payeras, both of who were born in the 1970's and began publishing in the late 1990's, exemplify the rejection of the war and the embrace of new themes and textual approaches. Yet, these authors, who reference one another in their writing, also reflect the literary diversity of their generation and its creative and intellectual restlessness. The fictional narratives of the two, read at the levels of structure and thematics, reveal a series of similarities and contrasts

that are emblematic of this generation. (The investigation and presentation will be carried out in Spanish).

The Three-Gorges Dam Project and Changes in China's Policy-Making Structure: What Hydropower Policy in China reveals about the Liberalization and Pluralization of Chinese Government Structure

Cantrell Brown [Surain Subramaniam], Interdisciplinary Studies

The Three Gorges Dam Project symbolizes a failing development strategy in China, a country for which the ability to achieve sustainable growth is vital. The immense hydroelectric Dam which spans the Yangtze River, primarily built to reduce flooding and generate power is generally heralded as a success by the Chinese Government. However, the environmental, social and cultural issues generated by the Three Gorges Dam has caused significant international outcry against building of such Dams as well as unmistakable challenges for the Chinese Government.

Unprecedented economic growth in China meant solutions to greatly rising energy needs were necessary. The government answered these challenges with a modern, industrial and perhaps short-sighted solution: the creation of the largest hydroelectric dam in history. Tracing the Government's handling of issues arising from construction of the dam allow a unique view of how and why the Government was changing. The Government found that it must liberalize in order to acquire capacity to adequately handle these issues. The Chinese Authoritarian political structure was fragmenting partially as a result of the controversial dam project. The desire for social stability lead to a unique form of liberalization in China: instead of Democracy, a unique brand of pluralism arose.

Broadcasting Propaganda: Voice of America's Role in the Hungarian Revolution

Patrick Brown [Ellen Pearson], History

Despite extensive research conducted by American, Hungarian, and Soviet historians regarding radio broadcasting to Hungary during the Hungarian Revolution of 1956, little is known about Voice of America's role in the conflict. This is largely because historians have focused on the aggressive broadcasts of Radio Free Europe, disregarding the impact of the more subtle propaganda issued by Voice of America. However, Hungarian refugees in the wake of the revolution claimed that both Radio Free Europe and Voice Of America encouraged Hungarians to believe that they would receive western aid. This study examines Voice Of America's role in instigating the Hungarian rebellion. The study relies on primary research from governmental policy statements,

interdepartmental memorandums, broadcast transcripts, and refugee reports. An analysis of these documents illustrates contradictions in government policy regarding broadcasting to the Eastern Bloc, which were intensified by a general ignorance of the Hungarian social and political climate. This dangerous situation led to controversial Broadcasts that exaggerated American successes and Soviet failures, discussed United States' foreign aid policies, and glorified violent revolutionary action. Through analysis of refugee reports it becomes clear that Hungarians' misinterpreted western broadcasts, leaving them waiting for western support that the west had no intention on providing. This study is part of a growing body of research regarding how the U.S. and the U.S.S.R. ignored, misled, and took advantage of third world nations, in their attempts to undermine their Cold War rivals.

The Changing Portrayal of AIDS in Film

Alexandra Browning [Lorena Russell], Honors Special Topics: Queer Films

AIDS greatly altered American society when the pandemic started in the 1980s. The virus was directly connected the gay community, and therefore permanently changed queer culture. In the three decades since AIDS came into the public eye, the portrayal of the disease in film has mirrored the knowledge of the general population. While earlier films depict AIDS as a death sentence, recent movies offer a more optimistic view. As AIDS became less mysterious, the topic was approached in film as more of a mainstream subject matter, with some films even focusing on the disease and its impacts on both the individuals and society at large, like the 1989 film *Longtime Companion* or the play-turned-movie *RENT*. The 1993 movie *Philadelphia* was geared to an audience that was less than familiar with AIDS, which reflected the growing curiosity surrounding it. Through film, AIDS can be seen as more than just another fatal disease.

The Food of the Gods

Ginger Buchanan, Madison Davis, Tony Cammareri, Gabrielle Campiformio, Anna Brown [David Clarke, Ellen Bailey and Amy Lanou]

Theobroma cacao, originally native to the regions of Venezuela, is revered for its taste and super-nutrient dense qualities. Swedish botanist Carl Linnaeus called this exquisite natural delicacy "Food of the Gods" because of the impression the fruit and its history made on him, and for good reason. Pre-Hispanic tribes cultivated the cacao and drank it for energy. The bean possesses many powerful health-benefits, such as having aphrodisiac effects, not to mention it is packed with antioxidants. Studies have shown that intake of cacao can actually reduce risk for cardiovascular

disease and lower blood pressure. Research also indicates that intake of the antioxidant flavonoids found in chocolate may lower risk of coronary heart disease mortality. Our display will elaborate on the cacao's cultural background and its many uses in ancient South American cultures as currency and ritualistic purposes. We will link this cultural information to chocolate's immense popularity throughout the past few thousand years. Our display will also emphasize healthy alternatives for people who want to use chocolate in foods, explain the nutritional value of different chocolate dishes, and provide recipes that use chocolate in interesting ways, such as a traditional South American hot chocolate beverage and mole sauce.

Evolution of embryonic developmental dependence in *Heterandria Formosa*

Sarah Burke [Rebecca Hale], Biology

Extreme dependence is the complete reliance on parental care for offspring survival during development. It is common in many organisms. Although it is often the norm, such vulnerability during embryonic development is costly to both the parent and the offspring. An optimization model by Hale and Travis examines this paradox and makes suggestions about how this development could evolve. The model suggests that offspring fitness and parental fitness co-evolve through the manipulation of parental effort by changes in the offspring development. The least killifish [*H. formosa*] is being used to examine gestational development patterns in an attempt to support the predictions of the Hale and Travis model (in review). Field research has shown these organisms to vary in brood size and offspring size among several populations (Leips and Travis, 1999). Data are currently being gathered about brood mass and brood size across developmental stages throughout gestation. The expected outcome is that stage-specific embryo masses will vary from one population to another. When complete, the data from this experiment will be combined with data from a concurrent experiment to test the prediction that populations with larger minimum birth size required for juvenile survival have greater stage-specific masses than populations with larger minimum size, as predicted by the Hale-Travis model.

La literatura mexicana; un vistazo a los temas del "viaje"

Katherine Burkett [Elena Adell, Greta Trautmann], Spanish

The theme of "journey" and how it could evoke feelings of displacement, solidarity, and oppression has long been present in Mexican literature, particularly in short stories between the 1940's-1960's. Through reading the stories of Octavio Paz, Juan José Arreola, Juan Rulfo, and Elena Garro, I was able to analyze they way that

this theme affected their writings. I also discovered through my research that there are many sociopolitical and cultural reasons behind this overlying theme. First, there was a major lack of economic resources in Mexico, forcing many families to move from their rural locations to larger cities in order to find work. Second, the Partido Revolucionario Institucional was in political power for most of the twentieth century, eliminating the concept of a real representative democracy and making individual growth during this time challenging. Finally, the Bracero Program established between the United States and Mexico caused many Mexicans to leave their country and family behind to try and find prosperity in the states. Through all of these events, "journey" became an even more prevalent theme in Mexican literature because of its relevance to the current situation and sentiments of the Mexican people.

Signal Flow: Audio Engineering as Metaphor for Phenomenological Art

Jesse Burr [Tamie Beldue], Art

The work is an abstraction of how people process experience as examined through the metaphor of audio signal flow. The small-scale drawings encased in encaustic present a compartmentalized view of individual struggling to process the experience of life. Encaustic is an ancient technique that involves demar resin and beeswax. In audio processing the musician creates a signal, that signal is transformed by a transducer into a small electrical signal, much as our brains transform a stimulus into small electrical impulses. Decisions involving pertinence, value, and placement are made, transforming competing wavelengths into harmonious music. As the signal goes through the various stages of the signal chain the sound becomes more pure and refined. Using encaustic provides a means of layering, scraping, and reacting to the imagery, acting out the process the image describes. The senses leave many ambiguities in our understanding. The work addresses this leaving no clearly defined answers but symbolizing vague notions and leaving much to subjective interpretation. Encaustic lends to this atmosphere of ambiguity, sometimes clouding and obscuring the images other times layering and overlapping requiring closer inspection from the viewer.

They Kill, We Watch: Voyeurism in Cormac McCarthy's *Child of God*

Kimberly Calvert [Literature], Merritt Moseley

Cormac McCarthy's *Child of God* is an episodic novel about a serial killer. The control over the narrative comes from the watchers, the omniscient narrator and the townspeople. The characters have no morals; they are as primitive as their subject Lester Ballard, the main

protagonist. The readers feel somewhat estranged from the novel but yet still interested. Society wants a form of the surreal. *Child of God* showcases this moment of interest we have as readers. The novel deliberately places the reader in an awkward state. The narrators leave the reader with a set knowledge, which is that human capability is not far from a child of God like Lester Ballard. Lester Ballard is an object. His actions mean nothing unless they are told. As readers, we are alienated from the novel yet completely captivated. The significance of my argument lies with Lester who is seen as far from normal but not far from human capability.

Chiles: A Latin American Fruit with a Bite

Lara Cantrell, Amelia Cole, Jenatha Craven, DJ Cunningham, Grace Didenko, Aries Druckenbrod, Mason Earp [Ellen Bailey, David Clarke, Amy Lanou]

Chiles have many common names but are known scientifically by the genus *Capsicum* within the family Solanaceae. Although botanists disagree on exactly how many pepper varieties exist, it is known that chiles are now cultivated in nearly every country, varying in size, color, and flavor. This fruit is rich in essential nutrients such as vitamins A, C, K, and B6. The vitamins contained in these peppers contribute to longer and healthier lifestyles and can help reduce the risk of long-term chronic diseases. In addition to the vitamins, another major component of the pepper is the colorless, acidic compound, known as capsaicin. This substance has the unique ability to fight unwanted bacteria and other microbes that contribute to the development of acute illnesses. Chiles' influences virtually every aspect of Latin American cuisine and holds a prominent role in many other cuisines worldwide. Our goal with this presentation is to educate the community concerning the cultural influences, biological composition, and nutritional value of chile peppers.

Computational Determination of Ethanol Dehydrogenation Reaction Pathway over Ni, Pd, and Rh Catalytic Surfaces

Kyle Cavagnini [Sally Wasileski], Chemistry

Various alternative energy sources are being researched today to answer the growing environmental and long-term viability dilemmas posed by petroleum-based fuel sources, and one of the leaders among these are hydrogen fuel cells. While these fuel cells offer a more efficient means to generate energy than from petroleum sources, the availability of the hydrogen fuel and cost of the catalytic metal surfaces used in the cells remains a hindrance to their large-scale implementation. Towards this, the dehydrogenation reaction pathways of ethanol to form the hydrogen fuel over Ni, Rh, and Pd surfaces were computationally modeled to look for periodic trends that could point towards a novel catalytic surface for

hydrogen generation from a biorenewable fuel source. The Vienna Ab Initio Simulation Package was utilized in periodic density functional theory calculations that ultimately yielded the reaction energies over each metal surface to determine the reaction mechanism. Presented is a full evaluation and comparison of reaction energies for each step of the reaction mechanism over Ni, Rh and Pd catalysts. It should be noted that this project used data collected by previous research team members. The total energy of reaction of dehydrogenation was determined to be -0.199 eV over Ni, 0.148 over Rh, and -0.351 over Pd.

The Landscape of Memory: Discovering the Essence of Southern Appalachia

Megan Chalk [Robert Tynes], Art-Painting

It is thought that only when a person is present in their environment, in a state of actuality, that it is possible to truly experience a place. Everything after that moment becomes memory. However it may be that after memory's omitting and blurring, the core of the location remains, stronger and deeper than before. With my work I aim to capture the essence of place through personal narration, visually retelling memories from seven notable locations in Southern Appalachia. To impart these recollections to the viewer, I utilize language and collections, a spontaneous and emotion driven process, and an abstract approach to landscape. The written language within each piece stresses a human presence in nature and a way to more finely describe the surrounds and experiences found there. The plants and flowers collected, placed into boxes and combined with collage, aid as a reference point; familiar objects which establish a more direct connection to the environment. The loose treatment of paint, vivid and often unexpected use of color, as well as the addition of texture serves to represent each landscape like the memories they are- a jumbling of images and senses which push forward then recede in an attempt to piece together an experience.

What is meant by Cherokee "traditional" ecological knowledge and who says?

Christopher Chemsak [Oguz Erdur, Irene Rossell], Environmental Studies

Traditional ecological knowledge—vaguely defined as the "way of knowing" or "way of living" of indigenous and traditional peoples in the context of their perception of their relationship to their environment—has become a familiar premise for contemporary ethnoecological research regarding the Eastern Band of Cherokee Indians. These sorts of ethnosience-related inquiries characteristically invite both social scientists and natural scientists alike to consider the extent to which "traditional" Cherokee beliefs, understandings, and

practices are manifest in the present-day Cherokee community. While such studies offer insight on specific time-honored human-environment interactions, they can also serve as a commentary on the perplexities of cultural identity. By interviewing several individuals who have conducted ethnoscience-related research specifically with the Eastern Band of Cherokee, I was able to observe and identify their particular tendencies in portraying and referencing the cultural identity of contemporary Cherokee people. In my presentation, I will assess both the consistencies and the inconsistencies of these individuals' adherence to established anthropological theories regarding notions of essentialism and otherization and I will also attempt to briefly delineate the implications of such tendencies for a generic interpretation of Cherokee "traditional" ecological knowledge.

Cleavage of C-C Bonds Adsorbed on a Rhodium Surface

Dana Clark [Chemistry], Sally Wasileski

Global climate change is escalating because of the combustion of fossil fuels, which emit harmful greenhouse gases. In order to protect our ecosystem, it is necessary to find an alternative source of energy. Hydrogen powered fuel cells have become a popular substitute because of their high efficiency and zero emissions, but the hydrogen fuel is not naturally abundant and must be generated from hydrogen-containing sources. The objective of this research is to use computational chemistry to investigate the chemical reactions behind hydrogen generation, namely carbon cracking, to better understand how to generate hydrogen for fuel cells. The first step was to develop a computational method for calculating carbon-carbon cleavage over rhodium catalytic surfaces. The next step was to determine the systematic cleavage of various carbon molecules to understand trends in carbon cracking. Lastly, it will be determined what role the catalyst has in facilitating these reactions. All calculations were performed using the computational software Vienna Ab-Initio Simulation Package (VASP).

Origins of the Czechoslovak New Wave

Katherine Clark [Donald Diefenbach], Mass Communication/Literature

The Czechoslovak New Wave, the height of Czech cinema, occurred between 1963 and the Soviet invasion of 1968, in an interval of cultural freedom during the Cold War. The New Wave saw the emergence of several prominent filmmakers that remain active in the industry today. These figures include Milos Forman, Jiri Menzel, Vera Chytilova, Jan Kadar, and Jan Nemeč; the films that they produced attained international success. They were marked with political allegory, experiment in form,

and a return to the modernist traditions and experimentation of earlier decades. The New Wave, often called the Czechoslovak Film Miracle, was able to happen due to two significant factors: a political reorganization from the Stalinist form of Communism to the Czechoslovak form of Democratic Socialism, and a gain of artistic and cultural freedoms as a result of this reorganization. Due to these factors, films produced during the 1960s established Czechoslovakia as a center for art and cultural freedoms in Eastern Europe. Its origins and success can be traced from early Czech cinema and early political ideology through the propagation of socialism and the oppressive era of communism, to the reevaluation of Marxist principles by intellectuals, artists, and politicians.

The Analysis of Boundary Layer Refractivity Using the CSU-CHILL Radar

David Coates [Christopher Hennon], Atmospheric Sciences

The lack of a dense network of observations makes the recording of small-scale surface conditions and the forecasting of small-scale weather phenomena difficult. This problem can be combated using a technique in which weather radar can be used to approximate local moisture fields based on the atmospheric index of refraction. The process of calibrating the algorithm will be discussed, including the algorithm's calibration schemes, the ideal parameters of a good calibration, and the limitations of the algorithm. Successful calibration of the refractivity algorithm allows for a comparative analysis between reference phase information developed during the calibration period and a particular scan's phase information during an analysis period. Calibration of the refractivity algorithm was achieved using a data set from 10 December 2010 and moisture field analysis was achieved using data sets from 13 December 2010 and 19 January 2011; the results of this analysis will be presented and compared to simultaneously recorded surface observations at a nearby airport to determine the accuracy of the algorithm's measurements.

The Effects of Mindfulness Meditation on Adult Learner's Language Acquisition Skills

Lowell Cook [Nancy Ruppert], EDUC

Contemplative pedagogy, or the implementation of mindfulness exercises in the learning process, has been increasingly utilized in modern teaching methodology after having emerged from the traditional Buddhist framework. In light of the reported strides and setbacks found in relevant literature reviews and similar studies, I prepared contemplative approach to teaching the English language to adult non-native learners. The study was conducted in Prague, Czech Republic using two

sets of groups; a control set who did their lessons as normal followed by a variable set who did identical lesson, however, supplemented by various mindfulness practices. Based on a pretest and posttest that gauged learners language proficiency, journaling assignments done outside the classroom, and MAAS (Mindfulness Attention and Awareness Scale) surveys completed at both the beginning, middle, and end of the term allowed me to be able to track their development of both the English language and their mindfulness practice. The findings of both sets of groups were examined in relation to other research studies, then a realistic model for bringing mindfulness into a broad range of classrooms was proposed.

Workplace Diversity among First and Second Shift: How Perceptions of Dissimilarity Impact Levels of Task- and Relationship-Based Conflict

Guy Cooper [Management], Bryan Schaffer

Operating a facility more than eight hours a day often requires an employer to fill positions with a diversified workforce that includes two or more shifts. Employee perceptions of dissimilarity between themselves and workers from the other shift are commonplace. This paper examines perceived differences related to productivity, work-life balance, pay scales and age, all of which have the potential to increase various types of shift-conflict. Four hypotheses form the basis of the research. Hypothesis one proposes that perceived differences in productivity between shift workers will increase task related conflict. Hypothesis two suggests that perceived separations of work-life balance ratios between shifts will increase relationship conflict. Hypothesis three suggests that differences in pay between shifts will increase economy related conflict. Finally, hypothesis four proposes that age dissimilarity between shifts will contribute to employee-based generational conflict. A survey instrument was administered to first and second shift employees at a large manufacturing facility in the Southeastern United States. Preliminary results support the above hypotheses and the general proposition that perceptions of dissimilarity among shift workers can lead to various sources of conflict. Importantly, the type of conflict affected was dependent on the nature of the perceived differences. While personal and demographic diversity impacted conflict rooted in relationships and values, production based dissimilarity was more closely tied to work-related conflict. Implications for management are discussed, including the need to examine the nature of resulting conflicts (functional versus dysfunctional), and the importance of establishing enhanced collaboration and communication between shifts in large organizations.

Latin American Development in Comparative Perspective

Linda Cornett – Political Science

Latin American Development in Comparative Perspective is a series of empirical case studies profiling selected Latin American countries along key social, economic, and political indicators over time. Examining the evolution and intersection of social, economic, and political trends across time as well as cross-nationally should uncover region-wide commonalities in Latin America's modern development, while also highlighting the unique features and experiences of different countries. This project includes contributions from 10 students, sharing information and insights to gain a better understanding of important contemporary trends in the social, economic, and political development of Latin America. This project includes contributions from 10 students, sharing information and insights to gain a better understanding of important contemporary trends in the social, economic, and political development of Latin America.

Sharon Baker-Peru, Ryan Blackmon-Panama, Billy Carrington-Colombia, Gabriel Deschamps, Saiz-Colombia, Katja Greeson-Bolivia , Madelin Jaekle-Ecuador, Carmita Cordova - Ecuador Amuel Moser-Venezuela, Marius Pflighar-Chile. Natalie Chevalier-Haiti, Benjamin Willis-Dominican Republic

Ethno{fiction}: Can Fiction Drink Tea with Ethnography?

Brittany Davis [Interdisciplinary Studies], Heidi Kelley

Drawing on the techniques of storytelling through fiction, this study is both an exploration of the lives of exiled-Tibetan women living in Dharamsala, India, and an experiment of integrating fiction with ethnography. Scholars such as Kirin Narayan, Ruth Behar, and Nancy J. Schmidt have questioned whether blurring the lines between fiction and ethnography would dissolve their traditional outcomes; thus, my intention for blending these genres is to uncover how they could work dynamically. The stories will be told from a third-person omniscient narrative through a setting of intertwining conversations occurring in a teashop, and will observe the types of informal and/or formal work that a small group of exiled-Tibetan women are sustaining in Dharamsala. Informal and/or formal work relates to basic daily means of survival, women's empowerment, and/or preservation of Tibetan culture. An interdisciplinary approach of compiling oral and electronic interviews, as well as on the ground field notes will serve as a foundation for fiction narratives, but the stories told will be imaginary and did not actually occur.

The Antiques Road Show and Other Love Stories

Mary Deal [Lori Horvitz], Literature

Student author Mary Deal reflects on her parents' ill-fated 26-year marriage as she tries to accept her father's rapidly approaching second marriage. While dealing with her emotionally unstable mother who has no knowledge of this secret wedding, she tries to organize her own life as a mess of odds and ends and memories begin to pile up around her.

Brain Computer Interface for Controlling Motorized Devices

Aaron Dennen [Rebecca Bruce], Computer Science

My software application utilizes the Microsoft Visual C++ language and the Emotiv SDK software layer to take a certain set of brain signals from an Emotiv Brain Computer Interface Headset and translate them to movement commands. An XBee wireless interface is used to relay the commands to the mobile device.

Foreign Direct Investment: An Economic, Political, and Social Analysis

Justin Dent [Joseph Sulock], Economics

I intend to look at the impact of perceived economic, political, and social factors on the choice of the international community to invest in a given country. I want to know if perceived or actual corrupt policies have a direct impact on foreign direct investment as well as what this means for growth and development in that country. To do this I propose to look at foreign direct investment and social indicators contrasting them using a pool of 65 countries in a statistical regression analysis. I am hoping that these causal comparisons will shed light on the externalities that the country and its people endure when the economy they live in is influenced by poor policy choices.

The Role of Author-Imagined Religions in *Cat's Cradle* and *Do Androids Dream of Electric Sheep?*

Melissa Dills [Merritt Moseley], Literature

Literature of the science fiction genre is popularly conceived of as being relevant only to what will happen, of asking primarily the question "what if?" However, the science fiction novel also asks the equally important question, "what is?" If science fiction serves as a mirror reflecting both the conditions and philosophic problems of living in the contemporary world, then the role of author-imagined religions in such works deserves closer attention than has already been given by literary critics. In an attempt to uncover the relationship between these

author-imagined religions and the contemporary world, I have analyzed two novels: Philip K Dick's *Do Androids Dream of Electric Sheep?* And Kurt Vonnegut's *Cat's Cradle*. Both Dick's Mercerism and Vonnegut's Bokononism are religions which, though discovered to be based on untruth or deception, nonetheless retain power over their adherents. The fact that both novels deal with apocalyptic events points to the devastation of World War II and the subsequent paradigm shift in the Western world as a catalyst for these novels' religious commentary: though religion is an illusion, a construction, it is no more artificial or absurd than the world in which we find ourselves.

Beginning at Jerusalem in the Regions Beyond: Edward O. Guarrant and the Southern Home Mission Movement

Caroline E. Diepenbrock [Ellen Pearson]; History

The Home Mission movement to Appalachia during the Gilded Age and Progressive Era has often been characterized as northeastern denominational enterprises, motivated by the Social Gospel, with the aim of civilizing mountaineers through social uplift. The problem with this simplistic characterization is that it misses many of the nuances of the Home Mission movement. An analysis of works written by Edward O. Guarrant, including, *Soul Winners*, *The Galax Gatherers*, and diary entries, as well as articles found in Kentucky newspapers, and in the *Christian Observer*, provide a richer view of the Home Mission movement. Guarrant, a former Confederate officer from Kentucky, was not inspired by the Social Gospel, but rather by his experiences during the Civil War, post bellum social forces in eastern Kentucky, his evangelical faith, as well as the influence of the Higher Life movement as espoused by Dwight L. Moody. The narrative of Edward O. Guarrant not only makes for a more complex and interesting story than the few pages most historians give it, but also provides insight to an important aspect of American culture.

Changes in Value Orientations of College Students: Assessing the Impact of Economic and Societal Events over the Last Decade

Michelle DiPietro [Management], Bryan Schaffer

The purpose of this longitudinal analysis was to examine value changes in U.S. college students over the last decade. Many societal and economic events, including 9/11 and the recent recession, have provided a context that provides importance for undertaking this endeavor. The Rokeach Value Survey (Rokeach, 1973) was administered to students in Organizational Behavior classes at two different Universities in the southeastern United States between the years of 1999 and 2010. The principal researcher inputted and examined the data to

find patterns and shifts in values associated with key events surrounding the corresponding time periods. Generational cohort theory (Edmunds & Turner, 2005) is used to develop the hypothesis that terminal values (beliefs associated with 'end-states') will show more stability throughout the years in comparison to more variable instrumental values (beliefs associated with modes of conduct). Results should indicate that values, such as health, family security, and a comfortable life, will continuously rank high among students even in a dynamic and changing societal context. As a set, instrumental values (i.e., ambition, self-control, and being forgiving) are expected to show more variability through changing societal conditions. The main implication from these findings is that students, who place a high value consistently on certain outcomes in life, may display modes of conduct that are more in line with shifting values congruent with their current perceptions of the world they live in.

Excluded Middles: The American Dream in Thomas Pynchon's *The Crying of Lot 49*

Lianne Domenic [Merritt Moseley], Literature

The American Dream is an important idea in modern American literature, and it is often depicted as being unobtainable yet highly desirable. Thomas Pynchon plays off the history of such an idea in his novel *The Crying of Lot 49*. In the text, the American Dream is at once dissolved and subverted. By depicting a single woman's journey across California in search of greater meaning and universal connectivity, Pynchon illustrates a unique take on the concept, which in turn speaks volumes about contemporary American society at the time of Pynchon's publication. By analyzing the role of the American Dream in the text, I argue that Pynchon likens the idea to a modern take on Classical mythology. This in effect shapes a new terrain for American literature, and bridges a new connection between ancient myth and modern society.

Uniform Color and the Athlete's Ideal Performance State: An Emotional Connection

Jenna Dover [Management and Accountancy], Jeffery Foreman

The purpose of this study is to investigate the potential emotional connection that collegiate athletes have with uniforms colors. It began with an in-depth examination of the current literature on sports psychology as well as color psychology. To describe an athlete emotionally, the study utilizes sports psychologist James E. Loehr's concept of the Ideal Performance State (IPS), a highly distinctive set of emotions linked with superior athletic performance. Fifty-nine NCAA Division-I collegiate athletes were surveyed in a "mall-intercept" type setting. Eight colors commonly found in uniforms were

introduced to both males and females to discover which ones solicit the highest emotional response in terms of the Ideal Performance State. In a self-report survey, participants ranked uniforms in terms of color dominance and then completed a color strength profile by scoring the uniforms based on five IPS emotional characteristics. Independent t-tests were used to analyze the statistical significance of the varying responses. Results revealed that athletes carry their internal color preferences into the sports world; they relate to uniform colors on an emotional level. Based on the responses, it is recognizable that darker colors were more appealing to the emotions related to Ideal Performance States. Study limitations and recommendations for future research are discussed.

Identity of a Hero: Changes in the Heroic Identity from Greek mythology to Percy

Hannah Drum [Literature], Merritt Moseley

The hero archetype has always been prominent in any culture; the hero is the representation of everything a culture values and what its people wish to be. If someone in our culture were to make a list of heroes, at the top of the list would be those famous in Greek myth: Hercules, Achilles, and Odysseus. These are all heroes that most people recognize by name. But there is a problem with using these heroes as a representation of today's society, because they are no longer relevant. The attributes given to these heroes by the Greeks are no longer what is considered valuable or heroic in the modern world. I believe that a representation of the new hero for the modern world is present in Rick Riordan's young adult series Percy Jackson and the Olympians. I have done a thorough reading of Riordan's five books and compared them to Greek myth. I will prove that Riordan's books demonstrate our culture's new idea of what makes a hero, as compared to the heroes of mythology, showing how the hero has evolved from his predecessors, how this new hero encounters the old myths, and the new ways in which he handles them.

Tooting Euclid's Own Horn

Austin Blake Duckworth (Greg Boudreaux), Mathematics, The University of North Carolina Asheville, North Carolina

Euclid called the space between a circle and its tangent a horn angle because of its rough resemblance to a curved animal horn and a regular angle. In this research project, the concept of a horn angle is precisely defined and used to describe "angles" between functions and their tangent lines. The main result is that a horn angle can be used to describe tangency, with the advantage that this approach provides an intuitive understanding of the uniqueness of tangents without reference to limits.

Elementary limit-less proofs of differentiation shortcuts are also explored

The VITA Program: From the Classroom to the Community Preparing Taxes for the Working Poor: An Accounting Perspective

Dwight Ehrlichman [Management and Accountancy], Joseph Sulock

This talk is an extension of the presentation by Griffin and Riddle, and is also based on participation in the VITA program of the IRS. The U.S. tax code can be quite complex and takes nearly 75,000 pages to describe. One complexity the working poor do not understand is the difference between IRS Form 1099 and IRS Form W-2. An employee who is incorrectly issued a 1099 instead of a W-2, will end up paying hundreds of dollars more in taxes than they should. Specific examples will be presented where the employees did not understand the differences between the two forms and the effects it had on their individual tax situation. Another point of the discussion will be the IRS guidelines for each form, and to demonstrate that there is strong employer incentive to “stretch the truth” and issue a form 1099.

“What Thou Lovest Well Remains, The Rest Is Dross”: Jonathan Williams And The Jargon Society

Melanie English [Tracey Rizzo], History

At the forefront of the American avant garde, Black Mountain College alumni Jonathan Williams' small press *The Jargon Society* published over a hundred volumes outside the mainstream of American literature between 1951 and 2008. Emblematic of the mimeograph revolution, The Jargon Society served as an interdisciplinary cultural intersection of experimental writers and artists, working in the historic context of the Black Mountain poets, the San Francisco Renaissance, and the Beat Generation. The Jargon Society's editorial direction was characterized by five major thematic interests that follow roughly the chronology of the press: the early work of major writers, the rediscovery of overlooked American and British modernist poets, first books by emerging authors, photography, and Southern Appalachian culture. Through the production and distribution of Jargon Society texts, Williams drew attention to overlooked writers and artists, uniting postmodernism and primeval folk culture, celebrating neglected aspects of Anglo American cultural production, and re-appropriating Southern Appalachian culture to elevate the low-brow to the status of high art.

The Effects of Expectation on Physiological Correlates of Reward Responses to Musical Stimuli

Sara Fenwick, Kyle Cavagnini, Silvia Chapman [Michael Neelon], Neuroscience--Psychology

Does a pleasurable stimulus produce a greater response when unexpected? Physiological evidence through skin conductance and other autonomic measures can gather information relating to the intensity of response to a given stimulus. This experiment replicates previous work which measured a subject's physiological response to musical stimuli under three listening conditions: to a liked song explicitly chosen by the subject; to a liked song presented seemingly at random, and to a song not listed as liked by the subject. The previous study looked at Galvanic Skin Response, GSR and concluded that the unexpected stimuli or liked song chosen at random did produce a greater response. We will replicate this study using equipment which will allow greater precision. This study will also look at heart rate and respiration in addition to GSR in order to assess the physiological correlates to unexpected rewards.

“Sunday Morning” and the Secular Anthem of Wallace Stevens

Joseph Ferrelli [Richard Chess], Literature

Despite the difficulty many have had with interpreting the poetry of Wallace Stevens, some insight has been gleaned from some of the poet's most prominent works including “Sunday Morning.” This famous poem of the great American poet grants insights into the thematic value imparted on the reader. To uncover such insights into Stevens's poetics, I thoroughly analyzed “Sunday Morning” with a close reading, and then scrutinized the poem under several pieces of directly related scholarship. In this process, I found “Sunday Morning” to be a poem which deals with a conflict between revealed religious faith and an original secular worldview that the poem offers as an alternative to traditional ways of looking a belief. The narrator of the poem advocates a secular humanist worldview that hinges on cultivating personal enjoyment of the physical world while rejecting the ethereal nature of religion. According to this pathway, one might enjoy life more fully. Ultimately, one finds “Sunday Morning” to be an argument for a secular worldview that resists the influence of religion.

Using Dendroecology to Determine the Effect of *Celastrus orbiculatus* on *Liriodendron tulipifera* growth

Jacob Francis [Jonathan Horton], Biology

Celastrus orbiculatus Thunb., an invasive exotic liana that has established in forests across the southern Appalachians, is recognized to have negative impacts on tree growth, but no research has directly quantified this decrease. This study established invaded sites with both twined and non-twined trees to test for the direct and indirect effects of *C. orbiculatus*. Invaded sites were paired with uninvaded sites with similar vegetation and soil moisture as a control for abiotic growth factors. Twined tree growth before and after the age of the oldest twining vine was compared to assess bittersweet's direct effects. A mean invasion time based on mean vine age for each invaded site was established and growth was compared between invaded, twined, and uninvaded trees before and after that time. Significantly decreased growth was observed in twined trees after the age of the oldest vine. These declines started within five years of invasion and were persistent for up to twenty years. There was decreased growth in all sites after mean invasion dates, but there was no conclusive link between this decrease and invasion by *C. orbiculatus*. Competition with other plant community components might be a stronger factor decreasing growth.

A Look at the Western North Carolina Report Card on Forest Sustainability

Rose Freer-Lancaster [Todd Pierce], Environmental Studies

The Western North Carolina Report Card on Forest Sustainability was created by UNC Asheville's National Environmental Modeling and Analysis Center (NEMAC) in conjunction with the US Forest Service's Southern Research Station. The report card uses the Montreal Process Criteria to evaluate forest sustainability in 18 counties in Western North Carolina. The 7 criteria used include biodiversity, production, ecosystem health, soil, water and air, carbon cycling, socioeconomic benefits and policy. Data was gathered for all of these indicators to determine rankings, which in turn provide policy makers and planners a tool to comprehensively evaluate problems and decisions facing our region. As a result, the report card can help with the goal of sustaining overall health and well being of our forests so that they may continue to provide valuable products and services. As an intern with NEMAC I have created power point presentations for each indicator evaluated in the report card as well as writing the accompanying notes needed to give the presentations. The goal of my work has been to make the findings of the report card accessible to a wide range of audiences while also streamlining the key findings in the report to most effectively share the results of the project.

The Trajectory of Haiti's Private Sector: Strategic Philanthropy as the new Business Model

Anjelica Fresia [Surain Subramaniam], International Studies

Haiti's history has included a volatile political climate, economic turbulence, and social unrest has lent itself to creating a difficult environment for businesses to operate in. Starting and closing a business, as well as obtaining capital and financing, have posed major challenges and barriers for doing business in Haiti. Despite these challenges, Haiti's economic trajectory is promising. Opportunities for the private sector to help with enterprise development, while simultaneously improving the lives of the people in Haiti and creating a more resilient state, are more than ever since the devastation left by the January 2010 earthquake and the recent Cholera epidemic that hit Haiti in early October 2010. This research paper seeks to 1) analyze the business environment in Haiti in within the socio-political environment preceding the January 2010 earthquake; and 2) utilize the strategic philanthropy model in explaining how the private sector can accelerate Haiti's economy while simultaneously improving the lives of the people.

Solid State Isotopic Exchange in Cobalt Complexes

Brittany Funderburke [Jason Schmeltzer], Chemistry

Isotopic exchange is the process through which one atom is displaced by another atom of the same element, but with a differing atomic mass than the first atom. Cobalt-57 has been shown to participate in isotopic exchange with certain complexes of cobalt-59, but the mechanism for this reaction has only been theorized. Through research, mechanistic information will be gathered and evaluated. This research will begin by synthesizing commercially-unavailable pure and mixed-ligand compounds of cobalt-59 with 1,2-ethylenediamine, 1,10-phenanthroline and 2,2'-bipyridine. Synthesized compounds will be analyzed for purity, arrangement, and ratios of ligands. Solid cobalt-57 will then be introduced to mixed-ligand compounds, where isotopic exchange is known to occur. Analyzing the final products of this isotopic exchange using analytical techniques is expected to clarify the mechanism of this reaction. With this new mechanistic information, it will become easier to synthesize radioactive tracer compounds for medical uses with increased safety and efficiency.

Surgical Resection Techniques for Hypothalamic Hamartomas

Brittany Funderburke [Dr. Patrick Foo], Psychology

Hypothalamic hamartomas are non-neoplastic brain lesions located in the hypothalamus. The principal symptom of these lesions is refractory epilepsy characterized by gelastic seizures. If left untreated, these seizures generalize to other regions of the brain and cause severe cognitive decline. Until recently, medical professionals considered hypothalamic hamartomas too risky to treat, in part due to their location in the central nervous system. Current medical advances have made it possible to use invasive procedures like transcallosal, endoscopic and orbitozygomatic resection techniques to treat these tumors with about 75% of tumors being completely removed. Other non-invasive procedures have very recently become popular within the hypothalamic hamartoma community and use radioactivity waves to destroy the tumor without directly damaging surrounding brain tissues. This poster will explain and evaluate different treatment options for this debilitating disease.

Friend Me: The Art of Darkroom Photography and live Conversation in a Digital Social-Networking Culture

Erin Fussell [Tamie Beldue, Eric Tomberlin], Art

Social networking websites create the virtual experience of friendships rather than the physically present experience of friendships. The tools of technology should not replace in-person connection. Friend Me addresses the idea of connection with another that emphasizes time spent together with black and white silver gelatin photographs taken during an organized date with a friend. Tools of technology were used to schedule further communications in-person between person and artist to create a way to bridge the disembodied Internet interaction with the art of live conversation. The portraits become documents of the experience of the time spent together. Each piece printed on warm-tone, fiber photographic paper embraces contemporary photography practice while utilizing traditional darkroom techniques. In a culture saturated with digital images, slow work in film allows for an appreciation of the time involved in the process of darkroom photography and in nurturing relationships.

I've "Bean" Missing You: How Adding Beans to Your Diet Can Improve Your Health

Laura Gardner, Blane Garrou, Meredith Greene, Megan Hawthorne, and Lyndsey Henderson [Ellen Bailey, David Clarke, and Amy Lanou]

Phaseolus vulgaris, also known as the common bean, has been a key plant food in Meso-American culture since its domestication in 5000 BCE. Of all the varieties of the common bean, pinto and black are the most frequently prepared. In our presentation on beans, we

will present nutritional and anti nutritional information, emphasize their health benefits, and provide suggestions for how to incorporate beans into the everyday diet. Nutritionally, beans are an excellent plant protein, are high in amino acids and antioxidants, and are a good source of both insoluble and soluble fiber. Anti-nutritional factors, which are also present in beans, can potentially inhibit the availability of minerals and diminish protein digestibility. Through proper processing methods these anti-nutritional factors can be reduced or eliminated to ensure optimal nutrition. We will also highlight the cultural significance of frijoles which are often incorporated into each meal of the day in Latin American cuisine. We will analyze recipes traditional to Latin American cultures and alter them, if necessary, to improve their nutritional value. We will cover soaking and cooking directions for dried beans, lower the sodium content, and eliminate high animal fat seasoning.

Health in Bolivia

Halcyon Garrett [Robert Tatum], Economics

The Commission on Growth and Development identifies twelve crucial characteristics necessary for economic growth and development within a country. These characteristics are defined as the "Twelve Pillars of Competitiveness." These factors enable economies of differing stages of growth to maintain stability and continue to progress. The fourth pillar, as defined by *The Growth Report*, is health and education. The report implies that without well-functioning health and education systems a country is hindered from development. During UNCA's International Studies course in Montero, Bolivia, we witnessed first-hand the extent of extreme poverty largely due to institutional shortcomings regarding health and education. This presentation will highlight the shortcomings within the health system specifically and discuss how issues connected to health effect Bolivia's economic growth. Based on our on-site experience, we recognize there exist numerous deterrents keeping Bolivia from economic growth. However, we believe that improvements in regard to public health care would have a positive effect on the educational system and provide Bolivia with the basic tools needed to grow and develop from an economic standpoint.

The Creation of the Mexican Hero's identity in the Corrido

Marcela Garza [Elena Adell, Greta Tratumann], Spanish

The corrido has long been an expression reflecting public values and a community's interpretation of the historical process. It is through the corrido that northern folklore in Mexico has contributed to the creation of the notion of a national hero which in return yields to the manifestation of the moral values in the population. The

corrido is a common musical expression that forms part of the Mexican folkloric tradition which has helped reinforced and strengthen the moral values of the country. As a music genre and as a subversive text, corridos have produced a model that has not only influenced artistic circles but also the moral values of the Mexican people. By analyzing corridos born from the Mexican Revolution to its newest addition to the genre, the narcocorrido, we shall examine how the moral values of the people have been transforming with the proliferation of the hero.

Detection and habitat analysis of the cerulean warbler on the Blue Ridge Parkway

Cheryl Geiger [Barbara Reynolds], Environmental Studies

The cerulean warbler is defined as a conservation reliant species, meaning that their future depends on the application of conservation forest management practices. The declining populations of -4.2% per year since 1966 have gained the cerulean warbler status as a focal species of the U.S. Fish and Wildlife Service and listed as vulnerable to extinction by the International Union for Conservation of Nature. Avian ecologists only have a rudimentary understanding of cerulean warbler habitat associations and preferences. The first objective of this study was to conduct point count studies to survey for presence of the cerulean warbler. The second objective was to perform habitat analysis on known nest trees. My findings indicate that cerulean warblers have an association with gaps located near contiguous forest. These results are supported by the location of successful nests in gaps with increased foliage cover with decreased height. I suspected that the nests occurred in gaps because singing females, who probably chose the nest-sites, could be heard with little acoustic interference from the foliage.

Stress, Workload, and Well-Being of UNCA Students: A Profile

Meredith Givens and Casey Ward [Tracy Brown], Psychology

The dynamics of substance abuse and college life have been of particular interest among researchers in recent years. In the present study, we set out to examine these dynamics among undergraduate students at UNCA. We utilized an anonymous survey format that asked students about their substance use patterns along with their self-reported state of mental and social health, their grades and their involvement in extracurricular activities. It is predicted that with increased emotional and social pressure, students are more likely to engage in substance abuse, and that extracurricular activities will correlate positively with student well-being and

negatively with indicators of unhealthy coping and poor study habits.

Cape Coast or Oguaa?: A Cultural-Historical Examination of Place-Names, Identities and Social Realities

Andrea Gottschalk [Heidi Kelley], Sociology

This ethnographic research project is a cultural and historical examination of the contemporary Ghanaian place called Cape Coast and Oguaa through the study of place-names. Using the tools of Humanistic Anthropology, place-names become the entryway into the multiple identities and social realities of this place, classified into pre-colonial, colonial, modern and changing. The stories were collected during a study abroad program in Ghana for the Fall 2010 academic semester and are told through the voices of three narrators: a Chief, a man of the community, and a professor of history. The project ultimately states the importance of place-names as symbols of meaning, memory and identity.

Personifying the Shadow

Allison Greenfield [Robert Dunning, Mark Koven], Art

The purpose of my work is to explore the Jungian concept of the shadow self, which is an embodiment of the undesirable parts of our own identity that we have refused to accept and have projected onto others. Our shadow can also manifest itself in complex, subtle ways; it may appear in our dreams and visions in various forms created by our subconscious. For instance, one's shadow may reveal itself in a dream as a person possibly with dark features because it represents a distant, primitive and irrational part of the mind. My work explores this concept by personifying specific parts of my identity that I have rejected and how they have manifested themselves in a variety of ways. Until I was able to consciously accept these parts of myself, I was tormented by feelings of severe anxiety, fear and a general state of mental anguish. The research and work of Jean Dubuffet and his concept of *art brut* has been an important part in the development of my own work as well. His interest in art that explores one's identity, psyche, and different emotional states all relate to the intentions I've had with my own work. While a major part of what defines *Art Brut* is that the work was created by artists who had little or no knowledge of fine art and suffered from mental illness, the main concept that I was influenced by was the idea that inspiration came from within, and allowed artists to authentically express themselves in a pure, yet raw and primitive manner. What makes the exploration of identity and the vast interior world of one's own psyche through art important

is that it uncovers nonverbal parts of our true nature that have been buried by rational, linear thinking and provides another way for us to understand ourselves.

The Effect of Cognitive Decline in Aging Adults

Erin Greger [Melissa Smith], Psychology

Prior research has found a decline in Theory of Mind (ToM) skills among aging adults, presumably due to age-related cognitive decline. The present study is part of a larger effort to better understand the relationship between language, ToM, mood, social support, age, and cognitive executive functions (EF). Here, we focus on depression, EF, and ToM in monolingual English speakers, aged 55 or older, with no known dementia. Participants were given verbal and nonverbal ToM measures, three executive functions tasks (Stroop, running span, trail making), and the Beck depression inventory. Findings of this study will contribute to our understanding of how ToM changes over the lifespan, and the extent to which mood influences one's ability to take multiple perspectives in later adulthood.

The Organization Economics of Roman Slavery: An Analysis of Agricultural Labor Market Organization

Jonathan Griffin [Chris Bell], Economics

This study examines the Roman master-slave relationship from the perspective of transaction cost economics. It differs from related works in that it is based on a direct reading of primary sources – analysis of major Roman agricultural writers Cato, Varro and Columella and other minor authors who comment on this economic relationship – rather than works in translation. This is preferred because in many translations, the translators' intent can be to emphasize literary or poetic merits of a work rather than the literal information. Issues examined in the study include economic issues of governance, incentives, monitoring and enforcement in the master-slave relationship. Through the exploration of these issues, the research determines if transaction cost economic theory is the appropriate framework for understanding this economic relationship and if the relationship is consistent with the major theoretical works written on the topic by economists Oliver Williamson and Yoram Barzel.

Research Issues Involving Tax Preparation of Low-Income Households

Jonathan Griffin, Sam Riddle [Joseph Sulock], Economics

This talk is an extension of the presentation by Pickering and Strazanac, "Characteristics of the Working Poor: Perceptions from the VITA Experience", and is also based on participation in the VITA program of the IRS. We begin by explaining-- using realistic scenarios-- the

economic incentive that low-income households have to "game the system" in order to secure potentially lucrative tax benefits, most notably to become eligible for the largest tax credit distributed to low-income households: the Earned Income Tax Credit. It was surprising to us that not even one client tried to do this. We noticed that many clients seemed suspicious of the "electronic movement of money." This may be one reason why expensive products such as Refund Advance Loans are so popular. Understanding the extent and reasons for this distrust would be an interesting subject for additional investigation. We also noticed that our clients were interested in understanding the tax code. Would the population of the Asheville area be able to support educational programs to assist taxpayers in understanding the fundamentals and nuance of the federal income tax code? We may also have sufficient data to estimate the fees we have saved our clients, as well as the total refunds they received.

Journey to the Essential Self

Stephen Gstundtner [Tamie Beldue, Eric Tomberlin], Art

This document describes a series of photographic portraits aimed at representing the ever changing aspect of self identity. Within a person's life one experiences multiple modes of existence. These modes can be seen as archetypal categorizations of identity. Through the use of traditional black and white photographic process the artist has represented multiple aspects of identity through the enlargement of silver gelatin negatives. These modes of identity are commonly called archetypes, which are universal human traits that have been found in virtually every documented civilization. By representing contemporary archetypes the artist is paying homage to August Sanders, the Austrian born photographer who documented pre-World War II German citizens and captured thousands portraits of individuals living among a wide and varying class stratification during the downfall of Weimar Republic in Germany from the early 1900s to the late 1920's.

Longitudinal Study of Chemical Properties and Macroinvertebrate Diversity in Western North Carolina Streams from 2005 to 2009

Emma Guild [Steven Patch], Statistics

This study analyzes data collected by the Volunteer Water Information Network (VWIN) and the Stream Monitoring Information Exchange (SMIE) between 2005 and 2009 to compare chemical parameters and macroinvertebrate assemblages in streams in Haywood, Buncombe, and Madison counties in North Carolina. Spearman correlations for the data indicated that copper and zinc levels were strongly negatively correlated with all indices of biotic integrity. A mixed linear model assuming compound symmetric correlation structure in

the residuals was used to analyze the data. Stepwise regression indicated higher levels of zinc and alkalinity to have a significant negative impact on biotic integrity. A principal components analysis of the data showed results consistent with those of the original stepwise regression.

Courbet, Eroticism, and the Birth of the Modern Woman

Allison Gulick [Leisa Rundquist, Cynthia Canejo], Art History

This presentation will discuss the work of the artist Gustave Courbet and his use of erotic imagery in the birth of the modernist movement. The research highlights Courbet's contributions to art and the numerous influences his work had on the period. Through examining the maturation of Courbet's portrayal French petit-bourgeois one can view the shifting social, economical, and political events that resulted from the turn of the century, industrialization, urbanization, and the idea of the "new woman." Courbet's depictions of erotic scenes in a series of his compositions make both a blatant and allegorical comment on Parisian social and political life. Through discerning the subtexts in Courbet's erotic compositions one can trace the progression and evolution of Modernity in France which greatly impacted and transformed the direction of the world of art.

Highsmith Gallery Internship

Allison Gulick [Leisa Rundquist], Art

This presentation will discuss the nature of my art history internship with the Highsmith Union Gallery as well as the responsibilities, experiences, and knowledge I have acquired as a result of this internship. I will also examine my participation in shows sponsored by the gallery and resulting interaction with resident artists, including "Meet the Maker" events. My intentions for the project component of my internship will also be explored in my paper. This project will center on creating more awareness about the gallery and the events that are held there in conjunction with increasing student interest and involvement.

Out of Ilium: Treatment of Place in Kurt Vonnegut's Slaughterhouse-Five, Galapagos, and Cat's Cradle

Jessica Guyer [Lorena Russell], Literature

Kurt Vonnegut's fictional city of Ilium, New York functions in his novels as more than a location. In *Slaughterhouse-Five*, *Cat's Cradle* and *Galapagos*, the city becomes a way to navigate Vonnegut's irony. Ilium reveals more about the characters that are found there by being transparent in the ways that they are not and it also functions as a place of origin for these characters in

stories that take them far from New York and even from the United States. There is an element of contrast there that reveals more about the characters as well as Vonnegut's own commentary on place and America.

Cilantro: It's More Than Just Salsa

Simon Haake, Nelia Hamby, Rhiannon King, Ed Heidel, Sarah Rybacki, Natalie Hoge [Amy Lanou, David Clarke, Ellen Bailey]

Cilantro, a humble backyard plant is a perennial herb that is used in a variety of worldwide cuisines including Latin American, Middle Eastern, and Asian foods. The Latin name of cilantro is *Coriandrum sativum* L. and its origins are unclear, although ancient texts place it in the Middle East in 5000 B.C. The leaves are high in dietary fiber and antioxidants. Studies show that LDLs (bad cholesterol) are decreased and HDLs (good cholesterol) are increased with the intake of this tasty, green herb. Additionally, cilantro is a significant source of the minerals potassium, calcium, manganese, iron, and magnesium, as well as the vitamins K, A, and C. Some of the health benefits of these nutrients include the promotion of strong bone growth, healthy skin, and good vision. Cilantro has been shown to aid in Alzheimer's treatments and the removal of heavy metals from the body, in addition to acting as an antimicrobial agent. A curious attribute of cilantro is that many people have an adverse effect to the unpleasant smell of the oils. The purpose of this research is to inform the public about a common herb that is often overlooked, but important in many different cultures.

Quantitative Analysis of Bat CT Scans

Amanda Hall [Chris Nicolay], Biology

Leaf-nosed bats of the family Phyllostomidae differ widely in diet, including species that eat insects, fruit, nectar, vertebrates, and even blood. In addition to their obvious role in feeding, canine teeth also are used in threat displays and intra-specific competition. This study used microCT scans to measure the total length, crown height, root depth, and crown/root ratios for the upper canine tooth in 15 different species of phyllostomids. Scans were conducted on skulls obtained on loan from several museums, using a scanner at Ohio University. Images were analyzed using GE MicroView software. Bats were classified into three broad dietary categories (nectarivore, frugivore, and omnivore). Crown/root ratios ranged from 0.78-1.65. Nectar-feeding bats had larger crowns relative to their roots than did fruit bats, which had deep-rooted teeth. Omnivorous species were more widely scattered. These findings are consistent with the view that animals that eat harder objects (fruit) will have shorter canines with deeper roots. Several nectar-feeding species are known to be sexually dimorphic in canine size. The relatively greater crown height in

nectar-feeding species is consistent with the idea that the canines in these bats are used in threat displays. Future studies could quantify dentin and enamel thickness in each bat species investigated. Based on findings of this study, bats that eat harder objects may have higher levels of dentin and enamel than nectar feeding bats.

Mössbauer Study of Spectral Differences of BaFe₂As₂ Sample

Joshua Hall [Airat Khasanov], Chemistry

The study of barium iron arsenide (BaFe₂As₂) may give greater insight for creating custom superconductors. Mössbauer spectroscopy allows for detailed investigation of the various transformations and environments of atomic structures in compounds including BaFe₂As₂. Noticeable change in one spectral component in the spectra was observed on a single sample of BaFe₂As₂ between two tests conducted approximately one year apart. In an attempt to understand this phenomenon, specific procedures were performed to better comprehend the cause of this observation. These included heat treatment, hydrating via a stem bath, and mechanical grinding of the sample. New spectra were ascertained after each procedure and studied for clues as to the cause of the difference in the original two spectra. This study is an ongoing effort to have a better understanding of the phase transition the studied material.

The Perceived Effectiveness of the NC General Assembly and How It Varies From the Voters

Nelia Hamby [Jeffery Foreman], Management

The purpose of this research study is to assess and compare differences between views of the North Carolina Legislature from the perspectives of voters versus those of the Legislators themselves. This research is important because it could provide insight into the contrasting perspectives between the legislators and the voters. It also will give a snapshot of the problems facing the state, and give others a starting point to find ways to bridge the gap between issues voters think are important and those the legislators think are important. This study is twofold in its approach. The first part is based on an ongoing qualitative study which has shown differences of opinion. The data is a collection of interviews and other exploratory research gathered from internet based surveys, personal interviews, and political forums. In the second part we have begun to collect the quantitative data to see if there are significant differences. The quantitative portion is based on a survey sent to the North Carolina Legislators that will be compared to voting results from the November 2010 elections

Television Viewership as an Indicator of Socio-Political Misinformation

Randall Hammond [Mark West], Mass Communication

In order to examine whether high levels of television use results in changes in the amount of misinformation viewers hold as true, this project examines responses to a phone survey on the Fall 2010 election in Western North Carolina. Using the core framework of pluralistic ignorance, it attempts to quantify misinformation rates and establish that a correlation exists between over-consumption of a given media source, here television, and a lack of knowledge of localized political events. Further, it examines the tendencies inherent in television to better understand why such a correlation exists either in Western North Carolina or in general, and whether or not any correlation exists across typical social indicators such as age, race, gender or income level.

Validating a New Algorithm for Wind Vector Retrieval in Tropical Cyclones

Social Protections, Welfare Stigma and the Use of Food Donation Services

Randall Hammond [Alan Hantz], Mass Communication

In the wake of the recession, the increase in regional unemployment rates correlated with the increased use of food pantries, food banks and other food donation services. At the same time, political pressures against the concept of the welfare state have politicians attacking social protections in the public sphere, which has the potential effect of an increase in the stigma against donation recipients and the real effect of a reduction in food donations received by food donation services. In order to examine the stigma against welfare recipients and the simultaneous praising of private welfare services, this project includes audio interviews from various sources from both perspectives, namely food bank volunteers and food donation recipients, along with a content analysis of media coverage of food donation efforts. It also includes background research into the origins of social protections and the welfare state as socio-political concepts, with the source material acting as a real-world example of what are typically abstractions.

Validating a New Algorithm for Wind Vector Retrieval in Tropical Cyclones

Zachary Hargrove [Christopher Hennon], Atmospheric Science

Scatterometers are satellite mounted instruments that have become extremely useful tools in estimating wind speed and direction for tropical cyclones in areas which we lack real time observations. One shortcoming of

scatterometers is their inaccuracy in retrieving winds under high precipitation areas, such as regions close to the eyewall and in heavier rain bands. A new algorithm called "X-Winds" has recently been developed to improve wind retrievals from scatterometers by correcting for the effects of rain. X-Winds is a geophysical model function (GMF), which translates the measured radiation backscatter into a wind direction and speed. This presentation will describe the planned validation study for the X-Winds algorithm. For validation, we are analyzing how well the algorithm performs when compared with actual reconnaissance data, buoy measurements, and data from a program called H*Wind that uses objective wind analysis. Preliminary results suggest that X-winds improves upon the standard GMF as well as a previous experimental GMF. Our eventual goal is to validate the success of this algorithm and eventually produce an improved, operational wind vector product that can be used for research and operational purposes.

Feeling Around in the Dark

Brian Hart [Lori Horvitz] Literature

The Art of Rearrangement: Using Anagrammatic Constraint To Liberate The Creative Process

Brian Hart [Richard Chess], Literature and Language

In 1960, a French literary group called Oulipo was formed to create formal constraints that rely on mathematics. The constraint systematically confronts inner artistic freedom with outer restriction to create new texts and rewrite existing texts. Anagrams accomplish both. The anagram, explored by Oulipians Oskar Pastior and Michelle Grangaud, is a valuable literary tool that can hide a word by scattering its component parts throughout a written work, thereby emphasizing the word. Also, anagrams can be used to re-imagine a word or phrase, liberating the artist from inherent denotations and connotations. Thirdly, anagrams allow for the discovery of words whose only connection lies in sound, from which a writer may connect the words through the traditional constraint of meaning. Anagrammatic constraints include the strict definition of anagrams - rearranging the letters of a word or phrase to create new words and phrases, leaving none out and adding none - and variants that rely on this definition, including minimizing the number of rearranged letters, rearranging phonemes, and discomposing a text's words. These anagrammatic constraints and purposes will be used as a way to facilitate the creative process, create original works of poetry, and discover the potentialities of inner artistic freedom.

Life-threatening Effects of Ritalin and Questionable Diagnosis of ADHD in Preschoolers

Bryan Hough [Patrick Foo], Psychology

Preschoolers are an understudied population with regards to attention-deficit/hyperactivity disorder (ADHD), and are challenging to properly diagnose and treat. For example, hyperactivity and impulsivity are characteristic behaviors of early childhood, but are included in the primary criteria for the diagnosis of ADHD. Methylphenidate (MPH), known commonly as Ritalin, is the most frequently prescribed medication to manage the symptoms of ADHD. MPH reduces the behavioral symptoms of ADHD and increases performance on certain cognitive tasks. However, will normal preschoolers without ADHD exhibit a similar reduction in hyperactivity when treated with MPH? How many misdiagnosed children, without ADHD, are currently running the risk of severe side effects such as psychosis, tachycardia, or stroke? This poster will examine and explain the diagnosis for ADHD and typical childhood baseline behaviors, in light of the increasing prevalence of ADHD among preschoolers in the US.

Haptic Sensation in a Perceptual Illusion

William Howe [Tracy Brown], Psychology

The mirror box, originally designed to assist in alleviating phantom limb pain, can be used to induce a perceptual illusion in healthy persons, which is a phenomenon in which a person experiences multiple conflicting sensory stimuli and does not properly distinguish them. This experiment explores the connections between vision and touch under conditions of a perceptual illusion as facilitated by a mirror box. A box bisected with a mirror is covered on one side. Participants were asked to place a their hands into the chambers created by the mirror and to then gaze into the open side of the box which, due to the presence of the mirror, created the appearance of a whole and open box. After a short period of acclimatization to the mirror box, participants were asked to lift a series of weights while looking at the false image created by the mirror and to then gauge the weight in the box's hidden side using a one to four scale. Each participant had a series of sixteen trials testing every possible combination of the four weights. Preliminary results indicate that the heavier weights were subject to the greatest misinterpretation.

Studies of Modafinil in relation to the Dopaminergic Receptor and the Dopamine Neurotransmitter, in Silico

Kenneth Huang [Noah Allen], Chemistry

Bulimia nervosa is a notorious eating disorder that affects a multitude of individuals across various age groups; little is understood regarding the neurological aspects responsible for the condition. The vigilance promoting drug Modafinil has been found to affect bulimia in a remedial manner, causing a complete cessation of bulimic urges in those suffering from the disorder, leading us to hypothesize that Modafinil affects the dopaminergic receptor in the brain in a manner. Utilizing both the molecular modeling software Spartan and the docking program Autodock, we were able to dock Modafinil and a lieu of other ligands to the dopaminergic receptor. By applying a variant of the Lamarckian-Genetic Algorithm (LGA) in conjunction with the Hartree-Fock method, we contrasted the binding likelihood of the ligands in the dopaminergic receptor to the native neurotransmitter. Through docking multiple known ligands into the receptor, we located amino acids that consistently appeared and mutated them in Spartan, allowing us to approximate the effects that the subsequent changes had on the binding affinity of Modafinil.

Pushed from the Pedestal: The Deteriorating Status of Southern Women as Embodied by Blanche Dubois and Stella Kowalski

Laura Hunt [Erica Locklear], English Literature

A Streetcar Named Desire models the collision of two worlds: the antebellum Old South and the post WWII New South. At the point of impact stands Blanche DuBois, Tennessee Williams' conceptualization of the mythic "Southern Belle." Considering the then-modern world in which Williams places his characters, her insurances about how Southern women once were and still ought to be treated ring as delusions. Research into primary source documents, including letters and journals of antebellum women, reveal Blanche's beliefs about relationships to be common of the traditional Southern Belle. Modern scholastic reviews, as well as close textual analysis of the original work, demonstrate the extreme violence present in Stella's world. Though Blanche is often colored as delusional or a liar, she merely clings to her belief in a better past and a refusal to surrender her ideals. This research will prove that Stella, representative of the New Southern Women generation, willingly submitted to her own oppression. It is she, not Blanche, who should be viewed with skepticism and disapproval, for her resigned acceptance of her topple from the pedestal to the gutter is symbolic

of the deteriorating status of Southern Women in general.

Evelyn K. Wells and the Appalachian Folklore Heritage

Melissa Hutcheson [Merritt Moseley], Literature

Evelyn K. Wells, a ballad scholar who worked in Kentucky in the 1930s, greatly influenced on the thinking of Appalachian and Scots-Irish ballads today. However, insufficient time has been spent on viewing the reasons behind her work. I have spent time analyzing not only her published works, but her unpublished writings located in the archives of the University of New Hampshire. These resources are being looked at against a backdrop of extensive histories on the Pine Mountain Settlement School, in Harlan Kentucky, where Wells worked and started her career. This paper will show the influence that Pine Mountain Settlement School had on Wells and the beginning of her career as the school worked toward preserving the heritage of folkloric Kentucky. Moreover, it will show the relationship between Appalachian and Scotch-Irish ballads, how the two cultures have, at places, become merged, separated or intertwined. This will bring the little known field of ballads forward, as well as allow the reader to see for themselves Appalachia's, particularly Kentucky's, folklore heritage.

Being in Time and Space: Experiencing the Phenomena of Perception in the Cells of Louise Bourgeois

Rachel Inch [Cynthia Canejo], Art History

Since her first retrospective at the Tate Modern, New York, in 1982, Louise Bourgeois has spun a complex autobiographical narrative of her work. This narrative became a text as it was retold in numerous publications, documentaries and used as a framework for scholarly analysis of her work. Bourgeois' Cell series has been discussed predominantly within the context of this narrative creating a monolithic, non-viewer-based discourse of meaning. However, recent scholarship has deviated from Bourgeois' text in favor for a more complex discussion of the Cell series that posits a phenomenological approach as a viable method for understanding these works. Utilizing Maurice-Merleau Ponty's phenomenological writings on aesthetics, this paper illustrates that an experiential approach to the Cell series that posits the viewer's spatio-temporal interaction with the works is what makes the series significant as works of art. Using a descriptive rather than a prescriptive vocabulary with a particular focus upon the use of mirrors in the works allows the viewer to gain insight into the phenomena of perception and understand their Being in the world through their relationship with the Cells.

North Carolina's Ten-Year Plan

Patrick Ingram [Alan Hantz], Mass Communication

This research paper examines North Carolina's ten-year plan to eliminate homelessness. This plan, which was implemented in 2005, was designed to provide affordable housing to all residents of North Carolina. To determine the effectiveness of the ten-year plan, poverty levels and homelessness in Western North Carolina will be compared to other areas of the state. Due to economic instability, as well as the rising cost of housing, homelessness has been an ongoing issue. Through charts and statistics of poverty levels and homelessness over the past six years, the progress of the plan will be evaluated.

La Patata Poderosas: The History, Origin and Nutritional Value of Potatoes

Carolyn Island, Holly Newton, Maria Olson, Rebecca Smith, Ben Survant, Marcus Southern [Ellen Bailey, David Clarke and Amy Lanou]

The word potato comes from the Spanish word "patata." The patata originated in the Andes of South America. Having over five thousand varieties, this staple food has saved populations around the world from starvation. Three thousand varieties are found in the Andes alone, mainly Peru, Bolivia, Ecuador, Chile and Columbia. The major species grown worldwide is *Solanum tuberosum* (a tetraploid with 48 chromosomes). There are two major forms, *andigena* or Andean and the *tuberosum*, or Chilean. Nutritionally the potato is known for its carbohydrate content; nearly 36 grams in a medium potato. The predominant form of this carbohydrate is starch. A small portion of this starch is resistant to digestion by enzymes in the stomach and small intestines. An ongoing problem in both Europe and the United States regarding the potato is *Phytophthora infestans* (late blight), as well as *Rhizoctonia*, *Sclerotinia*. Other information will be revealed at the presentation, including original recipes and a detailed discussion of the items already mentioned.

Concealment and Expression: A Paradoxical Love Affair within Carnival

Caitlin Johnson [Tamie Beldue], Art

Human actions are dependent upon time, place, and audience in which individuals present themselves to others based on cultural norms, values, and expectations. Due to external pressure, people often mask their true identity and pursue the acceptance of the society around them by obeying cultural norms. When

someone transgresses the social code, they are labeled deviant. However, in backspaces such as Mardi Gras, ordinary levels of surveillance are reduced, providing a liminal space for transgression and playful deviant behavior. The use of masks allow people to bridge hierarchal classes and defy constraints of social norms, permitting an individual to express their secret identity. Through extensive research, the work acknowledges the simultaneous existence of both concealment and expression during this period. Through drawing and painting, life-size figures are depicted participating in the progression of the carnival festival from it's beginning to end utilizing vibrant and contrasting colors to capture the essence of carnal moments. The expressive quality of the festival translates into the mosaic-like lines that portray the contour and volume of the human form. Through this body of work, secret identities emerge for a moment in time, before life resumes to normal.

Trichloroethylene (TCE) in Tree Rings near the CTS Superfund Site

Kathy Johnson [Jeffery Wilcox], Environmental Studies

The CTS plant in south Asheville was an electro-plating facility for approximately 30 years, and evidence has been found that the company was dumping the carcinogenic compound trichloroethylene (TCE) onto the grounds surrounding the plant. The TCE then leaked into the groundwater and has contaminated springs and creeks that flow from it. The goal of this research project is to use TCE in tree cores to determine the extent of TCE contamination surrounding the springs. Samples have been collected from trees growing in and around the contaminated springs, and preliminary tests have identified TCE in trees cores. Results from continued testing will be used to determine if a TCE plume map can be drawn based on the location of trees found to have TCE within them.

Baseball, the White Gentlemen's Sport?

Sebastian Jamaica [Christopher Bell], Economics

An empirical study examining difference in salaries paid to free agent professional baseball players of diverse races. Specifically, the study answers the question are White MLB players paid more than African-American and Hispanic MLB players of equal ability? My motivation for this study is to observe if there is any salary discrimination in the MLB. I am Hispanic, and I would like to know if there is still racism in sports in the U.S., especially in baseball.

Identity Theory in Abstract Expressionism

Sarah Jones [Cynthia Canejo], Art History

The works of Jackson Pollock and Willem de Kooning are known for their vibrant color, rich historical context,

and innovative process. However, the use of psychological theory can add greater depth of understanding to the potential meaning and subject behind the works of these two artists. This paper uses the ideas of Carl Jung and Joseph Campbell to dissect two works from each artist; for Pollock, *Guardian of the Secret* and *Autumn Rhythm*, for de Kooning, *Woman I* and *Excavation*. Jung's ideas of the archetype are used to demonstrate a struggle in the works mentioned above. Campbell's theory of the rise and fall of the hero pertains particularly to Pollock's recognition as the foremost American artist, a struggle illustrated clearly in the drip paintings of his later period. The analyses of the works include color theory, speculation of subject and inspiration, and historical and societal context. The inclusion of multiple elements allows a detailed and layered understanding of not only the works of the artists, but the men themselves.

Civic Humanism or Self Propaganda: The Two Faces of Medici Art Patronage

Nicole R. Josheff [Cynthia Canejo], Art History

Beginning in the fifteenth century, artists embarked on a period of cultural exploration which eventually became known as the Renaissance. Florence, Italy, was at the center of these cultural changes. In order to fully acknowledge the unfolding of this unique time in history, one must recognize the artistic awareness and generous patronage of the arts by the Medici family and their rise to power in Florence, Italy. After extensive historical research and analysis of the iconography of the artworks commissioned by the Medici family, it becomes clear that there were two distinct motivations behind these commissions: civic humanism or self propaganda. The purpose of this paper is to interpret scholarship and extrapolate from it a conclusion that the Medici paid attention to the arts for selfish reasons and used visual self propaganda through the arts as an ingenious campaign to gain the support of their fellow citizens and ascend to the upper echelons of the ruling Florentine society.

Harmony in Time

Megan Kazmierski [Tamie Beldue, Eric Tomberlin], Art

Music is an aural art form that creates physical, emotional, and mental connections for individuals. The affect that a musical experience has on people is a lasting impression often linked to memory caused by brain activity according to the person's individual association with a subject or situation. Through visual research of black and white photography, creating silver-gelatin prints, along with literary studies, individual feelings and occurrences document and analyze personal musical experiences. Research from Bennett Reimer suggests, "When something is perceived from

outside the body, feeling combines that which comes from the object or event perceived with brain/body responses inside the body." Musicians display their internal responses externally when singing or playing instruments through facial expressions, body language, or through their music.

Dance and Line: Creating Emotion in Space

Sheli Karr [Tamie Beldue], Art

Like the visual art of drawing, dancing is an art form that relies on space to create complex images. As dancers move, their bodies become exaggerated, displaying visually expressive movements. Lines in a drawing are no different; each mark is communicative, twisting, and turning, never ending as they move through space. They transition from one image to another, creating visual movement, offering an illustrative narrative. In dance, transition is a crucial tool, especially when large movements are executed. Everything must fall into place, so that dancers can exude a constant flow of energy that forms a series of powerful images that are emotionally charged, balanced, and graceful. Dancers must position their bodies in extremely dexterous positions when they perform live on stage to create this visual artistry. Through extensive research, this body of work was created to explore the synergy between these two art forms through abstraction of the figure, variation in mark making techniques and geometric patterning. Through the use of dynamic light and shadows this series of ten 22.5 x 28.5 charcoal drawings were created to exemplify how the figure moves in space, using the rich and bold lines found in German abstract expressionist woodcuts.

The Fate and Transport of Pharmaceuticals and Personal Care Products in Sediments and Soils

Katharine Kerr [Jeffery Wilcox], Environmental Studies

As a highly medicated society, the contamination of surface and groundwater resources by pharmaceuticals and personal care products (PPCPs) is a growing concern. Due to the regular use of these common products, PPCPs enter the environment through human waste and the direct disposal of excess PPCPs into sewage. Previous research has shown that PPCPs can be detected in natural water systems in low concentrations. Consequently, there is rising interest in how PPCPs interact with and affect the environment. To better understand the fate and transport of PPCPs in groundwater, this study focused on the sorption of seven common compounds to pure minerals and several natural soils. The compounds studied were salicylic acid, caffeine, carbamazepine, bisphenol A, propranolol, diclofenac, and ibuprofen. Sorption coefficients for the PPCPs were calculated from sample data collected from column and batch experiments and analyzed using high

performance liquid chromatography. The study showed that most sorption of PPCPs occurred on fine grained sediments as opposed to coarser fractions. The data collected provide useful parameters for more accurately modeling and predicting contaminant transport through groundwater systems, and continuing research is being performed to more closely examine the mechanisms involved in the fate and transport of PPCPs.

The Illicit Market of ADHD Medication on a College Campus: A Case Study of Supply and Demand Savannah King [Christopher Bell], Economics

College students often face pressure of performing well in their classes. Some choose to meet this challenge by obtaining ADHD medication for enhancing cognitive abilities such as memory retention. However, not all students wishing to have access to this medication are diagnosed with ADHD. They instead become buyers in an illicit market in which participating students with prescriptions sell a portion of their pills. This study systematically investigates characteristics of this market, giving special attention to causes of fluctuating prices throughout a semester. Survey data collected from both student buyers and sellers is used to illustrate seasonal changes of supply and demand.

The Meaning And Significance Of Polychrome Greek Statuary William W. Knauth Faculty Advisor: Dorothy Dvorsky-Rohner; Classics Department, University of North Carolina Asheville

The history of a great society can be studied by a variety of means in addition to and supplementing written documents. This research seeks to examine the progression of ancient Greek civilizations using a new lens, art. Specifically how the depiction of the individual in painted statuary corresponds to events of the Peloponnesian war, Macedonian conquests, and the creation the Hellenistic successor states. This investigation examines the method, meaning, significance, and the parallel developments in politics and society of ancient Greek sculptural polychromy. The technical details of polychromatic sculpture explain the process through which polychromy becomes an integral component within the Greek historical record. These technical details include the choice of color, their availability and access which change with political disruptions. An analysis of painted sculpture's message and its significance within the pattern of Greek art, its place, origin, point to important connections with the Middle Eastern Art. Polychromy reflects the people and social institutions that produce it and provides another tool for analysis. As the polis state underwent socio-political changes the conventions of Greek polychromy also changed. Extant statues show that archaic and

classical sculptural polychromy portrayed the subject as a stylized type; this is markedly different from Hellenic depictions which aimed at depicting an individual. Unpainted Greek statuary are merely skeletons. Their coloration is incredibly important to fully understand Greek art and culture.

Identification of Regions within Galpha12 Important For Interaction with Cell Adhesion Proteins Kelly Kreitzburg [Thomas Meigs], Biology

The intracellular signaling protein Galpha12 regulates a variety of cellular processes, which include cell adhesion, migration, cytoskeletal rearrangement, and oncogenic transformation. My research has been focused on identification of specific regions within Galpha12 that interact with its target proteins. My preliminary experiments studied the interaction between Galpha12 and the direct effector p120 catenin (p120ctn), which is associated with multiple cellular activities and described as a tumor suppressor. A fusion protein of p120ctn and glutathione-S-transferase (GST) was immobilized on a chemical matrix and tested for interactions against a series of mutant forms of Galpha12. These studies revealed several regions within the Galpha12 sequence that facilitate differential binding to p120ctn with another group of proteins, the RhoGEFs (guanine nucleotide exchange factors). As well, data from binding assays suggest the C-terminus of Galpha12 is critical in p120ctn interaction. More recently, my research has consisted of engineering a fluorescent tag of enhanced cyan fluorescent protein (ECFP) and Cerulean fluorescent protein into Galpha12. These fluorescently tagged versions of Galpha12 will be used in cell morphology assays via microscopy to better understand the cellular localization and cell morphology associated with Galpha12.

Processing Game Will Lacy [Susan Reiser], Computer Science

In today's world, many people substitute social activities like bowling with gaming. Instead of going out every Monday and bowling with their friends, people compete and socialize through gaming. Some games have highly structured tournaments and leagues, comparable to those of real life sports. Communities form around games. It would be a dream come true to one day create a game about which a community forms. I developed a game in Processing, a language developed at the Media Lab at the Massachusetts Institute of Technology by Casey Reas and Ben Fry. The game's interface uses the mouse and familiar WASD keyboard controls. The object of the game is to survive as long as possible while dodging meteors, which gets increasingly more difficult because your player enlarges over time.

Identification of Microorganisms Cultured from Hemlock Associated Soil in Great Smoky Mountains National Park

Danny Lammers [Betsy Wilson], Biology

Soil proves to be a highly abundant source of life for various strains of bacteria. Due to an estimated 10^9 bacterial cells per gram of soil, numerous phylogenetic groups of naturally occurring bacteria are believed to be present worldwide. While many of these have been identified and cultured, it is hypothesized that a vast amount of soil bacteria has yet to be cultured, studied, and identified due to the nearly infinite possibilities of required growth conditions. If cultured, these newly discovered bacteria could be subjected to future study in order to determine their biological roles in their respected ecosystems. This study sought to not only grow rare, previously uncultured soil bacteria, but also obtain pure samples of each culture and determine their ecological role in the soil. Hemlock associated soil samples were obtained from Great Smoky Mountains National Park and brought back to the lab for cultivation. The bacteria samples found in the soil were allotted a ten week incubation period under aerobic conditions on nutrient poor medium plates at room temperature to ensure proper growth time for rare, late forming organisms. DNA was isolated from pure cultures and polymerase chain reactions were used to amplify the small subunit ribosomal RNA genes. Analysis of the sequences of these genes was used to identify the soil isolates.

Stormwater Quality at A Low Impact Development (LID) Best Management Practice (BMP) Demonstration Site in Mars Hill

Carl Larson [Jeffery Wilcox], Environmental Studies

Nonpoint pollution from stormwater runoff is a major cause of river and stream degradation, especially in mountainous areas such as western North Carolina. This issue becomes especially important in areas with rapid urban development, such as the greater Asheville area. The town of Mars Hill, in conjunction with a number of partners, has implemented a stormwater low impact development (LID) best management practice (BMP) demonstration project situated at the Mars Hill town hall. This project includes a number of different stormwater management practices and is intended to demonstrate how stormwater management facilities can both benefit water quality and be enjoyable in their own right. This study was undertaken to assess how well the demonstration project in Mars Hill is treating the stormwater runoff. Input and output samples were taken from each of the treatment areas and tested for common pollutants including metals, nitrate, and hydrocarbons. The results of this study will help determine which of the LID methods is most effective and will help developers

and contractors make better decisions about stormwater management in the future.

Squash: The Wonder Vegetable

Kaitlyn Laughter, Shelby Lott, Amy Jolly, Sarah Hinson, Kathryn Hannah, Jessica Lusk [Amy Lanou, David Clarke, Ellen Bailey]

Squash has been cultivated and consumed for over 10,000 years throughout the Americas, originating somewhere between Guatemala and Mexico. Squash was first cultivated for its seeds (pepitas) which very rich in zinc, particularly in summer squash. The three sisters, squash, corn and beans, are considered the staple crops of Latin American cuisines and are often planted together. The most widely cultivated species of squash, *Cucurbita pepo*, has changed through domestication over time, adapting to the needs and desires of growers and consumers. Common examples of this type of squash include pumpkin, zucchini, and gourds. Both summer and winter squash are sources of manganese, vitamin C, magnesium, vitamin A, fiber, potassium, folate, copper, riboflavin, and phosphorus. Squash has been linked to the prevention of cancer and benign prostatic hyperplasia in men, and also supports a healthy cardiovascular system. Recent research has shown that various kinds of squash, some of which contain beneficial antioxidants, can act as insulin regulators. Packed full of vitamins and nutrients, squash is a healthy alternative to the processed and fatty foods that one may consume today. Through this project we hope to inform individuals of the cultural history of squash, as well as its nutritional and health benefits.

Simulated Dockings of Modafinil into the Dopamine 1 Receptor

Lyle Lawrence [Noah Allen], Chemistry

Modafinil is a wake-promoting drug developed by the biopharmaceutical company Cephalon and is used for the treatment of narcolepsy, excessive day time sleepiness, and shift work sleep disorder. Recent findings by an Asheville area psychiatrist suggest that modafinil has the potential to treat the eating disorder bulimia nervosa. It is suggested that the Dopamine 1 receptor plays a role in this eating disorder. Computational studies were performed to determine the binding site and binding energy of modafinil in the Dopamine 1 receptor. To determine how well modafinil binds to the Dopamine 1 receptor, comparisons were made to drugs that are known to bind with the Dopamine 1 receptor; amphetamine, methamphetamine, and the dopamine neurotransmitter. When comparing the binding sites and binding energies of these ligands it shows that modafinil is a good candidate for successful binding to the Dopamine 1 receptor. In vitro studies must be done to validate these results.

Meditation and the Stroop Task

Jacqueline Levinson and Trish McCuen [Tracy Brown], Psychology

Research on the effects of meditative practice on cognitive functioning has generally failed to address the topic of selective attention. The present study addressed this gap by measuring Stroop interference and facilitation effects across groups who had either just finished meditating or had not meditated previously. In the Stroop task, participants attempt to name the color in which a word is presented while ignoring the word itself. Interference (reduced speed and accuracy of responding) occurs when the word and color are incongruent (the word “red” in green); facilitation occurs when they are congruent (“red” in red). Our research question was whether participants who had just finished a 30-45 minute period of meditation would show decreased interference when word and color were incongruent, which would reflect improved selective attention and more efficient information processing. In addition, increased facilitation effects on congruent trials could indicate faster activation and processing of color information, and the relationship between facilitation and interference effects can measure selective processing – the ability to benefit from congruent words without the cost of interference from incongruent words. Participants in the meditation conditions were recruited from local meditation centers and, when possible, were tested both before and after meditation.

Nurturing the Places that Nurture Us

Alex Livingston [John Wood], Anthropology

Our context is becoming increasingly global and interdependent, and a planetary awareness is growing amid the common concerns of environment, poverty, health, and conflict. Yet, in many ways, this awareness remains incredibly abstract. On the one hand, it is critical that we learn to appreciate our planet as a unique place in the cosmos; indeed, the only one we know of that supports the complex synergies of life. On the other hand, however, such awareness remains ungrounded and rootless until it is expressed locally. As the human population becomes increasingly urbanized, city farming becomes one of the most viable means of local expression. What are the implications of growing food in the city? How is growing food a place-making activity within both the global and local context? This presentation will explore the paradox of inhabiting different scales of place, and the possibility of nurturing the places that nurture us. Finally, it will explore city farming as a means of bringing global awareness back down to earth.

When Voice Blurs: Community and Collaboration of the New York School of Poetry

Gillian Logan [Merritt Moseley], Literature and Language

The American avant-garde of the 1950s and 1960s challenged what defines art and process. The New York School was one rejection of the authoritative voices of American literary critics and their reliance on traditional forms and subjects. Drawing on inspiration from abstract painters, the poets crafted innovative work that depicted both the esoteric and the common. A Nest of Ninnies, a novel by James Schuyler and John Ashbery, is an often forgotten piece that reflects the defining elements of the New York School, collaboration and community. This novel reveals the complex community of the New York School. Using sociological studies on collaborative work and analyzing the novel, the study will show the influence of collaboration on artists and the product of collaborating on an artistic piece, a new voice. Throughout the research, the question of collaboration and voice will contribute to the larger understanding of avant-garde literature.

Les Traditions de Poesie et La Question de Transnationalisme

Gillie Logan [Sandra Malicote], French Literature and Language

Les poètes qui s’associe avec l’école de poésie de New York aux années 1950s ont découvert l’influence des artistes obscurs. Surtout, le poète américain, John Ashbery, a découvert personnellement les œuvres de Raymond Roussel. Roussel était un poète et un dramaturge français qui a créé des œuvres bizarres et complexes. A travers les théories de transnationalisme, on note le transférent des idées. Dans le roman d’Ashbery, Other Traditions, il note l’influence de Roussel sur le post-modernisme. Les deux poètes écrivent pendant une époque de changement culturel, et leurs œuvres posent la question de transnationalisme. Cette étude va examiner les traditions poétiques partage les entre les œuvres de Roussel et celles de Ashbery en particulier Les nouvelles Impressions d’Afrique, de Roussel, et Le Serment de Jeu de Paume, d’Ashbery. On examinera les théories de transnationalisme d’Edouard Glissant dans La Poétique de Relation. L’étude des traditions transfertes ajoutera a la discussion des idées de métissage.

Cylindrical Braids and Knots: The Braids on a Cylinder

Austin J. Mack [David E. Peifer], Mathematics

Classification of knots has been looked at by many since 1860. Recent research has investigated knots by looking at the braids that generate them. A braid is a set of n strings, $s_1, s_2, s_3, \dots, s_{(n-2)}, s_{(n-1)}, s_n$, all of

which are attached to a horizontal bar at the top and bottom. Each string always heads down; two strings are able to cross if they are next to each other, $|i-j| = 1$ for s_i, s_j . Cylindrical braids differ from traditional braids by being constructed on a cylinder, such that the strings are connected to the top and bottom circumferences. This allows s_1 and s_n , the first and last string, the ability to cross on the back of the cylinder. This research aims to classify all knots that can be created by specific cylindrical braids, as well as determining if all knots can be created by cylindrical braids. Algebraic braid groups help classify these cylindrical braids using algebraic groups. Constructions of cylindrical braids are crucial in this investigation. From these constructions we also look at the corresponding knot characteristics, such as Seifert surfaces and Jones polynomials. The 2-string cylindrical braid case has been successfully analyzed. This case is used to investigate the general case of n -string cylindrical braids. Construction of cylindrical braids will give a new way of classifying knots. Knot theory has been used in DNA studies, physics, and computer science. The increased knowledge of knots and braids can help in these studies, as well as other mathematical areas.

“On the Cult of the Star and the Existence of Contemporary Camp”

Edward Madill [Lorena Russell], Literature and Language

The film genre known as camp is often referenced and imitated by contemporary film makers. In many critics' views, however, camp as a genre is inseparable from camp as an expression of queer sexuality. In addition, the cult nature that surrounds acknowledged camp actors and their appropriation as representatives of acceptable forms of sexuality constitutes more than just a “campy” aesthetic—it relies on a stylized and coded language unique to the genre. The connection between actor/star, film, aesthetic, and intent will also be explored within the context of Bette Davis' role in the classic camp film “All About Eve.” This will be analyzed against contemporary films marketed as “campy.”

Characterizing the Interaction between Gα12 and Membrane--Associated Target Proteins

Jonathan Manhard [Thomas E. Meigs], Biology

Heterotrimeric guanosine triphosphate (GTP) binding proteins are intracellular signaling proteins that are composed of three distinct subunits: α , β , and γ . When activated by a G-coupled-protein-receptor, the α subunit exchanges GDP for GTP and dissociates from the $\beta\gamma$ dimer to produce a number of different cellular responses. Gα12 is a particular one of these subunits, and is involved in a variety of cellular processes, including actin cytoskeletal rearrangement and protein

localization regulation. This research analyzed the interaction of Gα12 with two of its effector proteins: αSNAP and Radixin. Alpha-soluble NSF attachment protein (αSNAP) is involved in vesicle membrane fusion in a number of different cellular contexts, including cytokinesis and protein trafficking regulation. Radixin is a member of the Ezrin/Radixin/Moesin family of proteins that crosslink actin filaments with plasma membranes, assisting in the regulation of the cytoskeleton. Engineering GST-Radixin and GST-αSNAP chimeric proteins and examining their ability to bind a select variety of constitutively activated mutant Gα12 proteins enabled the characterization of these protein interactions. Several of these Gα12 mutants have exhibited deficient capacity to bind these effector proteins, illustrating critical points of interaction between the signaling and structural proteins. These findings may facilitate future research elucidating the significance of these interactions within the cells of model organisms.

Place, Community and Belonging among Immigrants in Emma, North Carolina

Jack Manning [Heidi Kelley], Sociology and Anthropology

Emma in Buncombe County, North Carolina, like many communities throughout the United States, has swelled with new ethnic and linguistic diversity due to immigration in recent decades. While both national and local tensions flare over immigration issues, grassroots efforts supporting immigrants are springing up on the community level, nationwide. In Emma, immigrants and non-immigrants alike rally together time and again in mutual support of one another. Nonetheless, structural inequalities, nativism and the recent economic recession present significant challenges in the lived experiences of immigrant residents in Emma, especially for those without documentation to legitimize their place in the U.S. Drawing from participant observation, conversations and informal interviews, this ethnography explores the dimensions of place, community and belonging as expressed by immigrants living, working or with ties to Emma, NC.

Developing a Neuroscience Community Outreach Program in WNC

Joseph Martin, Brandon Booker, Jesse Tanas, Taylor Cole [Patrick Foo], Psychology

Educating young students about neuroscience can be difficult, and is extremely rare in elementary and middle schools, especially in Western North Carolina. We have developed a classroom program that informs young students about neuroscience topics in an engaging manner, to generate ongoing interest in the field. Our program educates students on the topics of muscle memory, smell, and attention. This program is also

designed to develop our own abilities to teach and present topics, benefit our own learning, and provide us with community outreach skills. We will give a presentation at a junior high school campus that introduces each topic through lecture and demonstration. This symposium talk will summarize our experiences as they relate to Neuroscience in WNC, and within the broader national Society of Neuroscience Brain Awareness program as a whole.

Boys and Girls Cry: A Look at Violence Experienced by the Transgender Community

Samantha Maser [Lorena Russell], Honors Special Topics: Queer Films

The film *Boys Don't Cry* was one of the first mainstream queer films to expose its audience to homophobic violence as experienced by transgender people. Brandon Teena, the main character, complicates reception of the film because he is frequently taking risks. In many ways, Brandon leans towards confrontation, yet in other ways he lets himself be very vulnerable in the face of social prejudice, hatred, and anxiety. The balance that the film walks, between daredevil and exposure, makes it hard for some viewers to see Brandon as the troubled, desperate-for-approval young man that he is. Transgender individuals experience some of the most violent hate crimes. Often times, as in Brandon's case, trans people fit in with the crowd until their "secret" is unveiled. People who were previously his friends violently lash out at him. The possibility of this homophobic violence keeps many trans people afraid and unable to fully express themselves because they cannot be safe. It is important to recognize the dangerous and insecure environment that trans people can face. Homophobia is not something that is exclusively experienced by gays and lesbians.

Digital Music Library Builder

Chris Mathews [Mark Boyd], Computer Science

This project is directed toward all of the modern music lovers out there with large quantities of Mp3 files. Often through the various means of music acquisition, the files and folder structures are lost, uninformative, or incomplete. Mp3 players such as the iPod essentially strip all of the structure from your library in favor of an encrypted database. If ever you want to restore your original library from these devices, it becomes a struggle. The digital music library builder is aimed at reforming your music library in such an event. This is done by evaluating the information embedded in the files themselves. Mp3's have hidden within their file header and footer, all the information about their production. Artist, album, track number and title, genre and much more; these are known as ID3 tags. The library builder extrapolates this information and makes folder

structures, names files, and organizes these mp3s appropriately.

Baby Talk: Understanding Language before Speech

Jo-Anne Mathier [Patrick Foo], Psychology

Is it possible for infants to comprehend language and speech before they can create it themselves? While older infants can vocalize learned responses, infants have demonstrated the ability to comprehend their native language by the age of 3 months. For example, 6 month old infants have the ability to look in the direction of where their mother is once prompted with the word "mommy;" if prompted the word "daddy" the infant will then look toward their father. Can new diagnostic tools detect language comprehension even before overt behavior is produced by infants? Near-Infrared Spectroscopy (NIRS) can detect notably activated bilateral auditory areas with regions in the superior temporal gyrus and inferior frontal gyrus in response to vocal sounds in infants as young as 4 months old. This new technology will aid in providing evidence that infants may understand far more language and speech at an earlier age than was previously suspected.

Visual Imagery and Memory in Print Advertising

Katherine Mauterer [Tracy Brown], Psychology

This research examined the effect of sexually suggestive imagery on memory for the appearance, brand name, and product of print advertisements. Specifically, whether the advertisements would have a positive effect on memory, in which the viewer would remember both the sexual nature of the ad along with what it was advertising, or a negative effect, where they wouldn't remember what it was advertising (perhaps in part because of the presence of distracting sexual imagery). Participants viewed 20 print ads, 10 containing suggestive sexual imagery and 10 control ads that did not, for 3 seconds apiece. This was followed, first, by a recognition memory test for the ads themselves (distinguishing the ads that were shown from new, previously unseen ads). This was followed by a second recognition memory task for brand names (distinguishing brand names from the previous list from novel brand names). If the participant recognized the brand, they were then asked to name the type of product advertised. Memory performance for the advertisements themselves, their brand names, and for the products being advertised, were then compared across the presence or absence of suggestive imagery. Results and implications for print advertising will be addressed.

The Tomato: A Fruit Strange and Wondrous

Morgan McCarty, Tiffany Narron, Kelli Riles, Valerie McMurray, Kalie Nattinger, Sarah Reece [Amy Lanou, David Clarke, and Ellen Bailey]

One of the basic fruits in Latin American cuisine and cross-culturally, the tomato was domesticated in ancient Mesoamerica and exported colonially after Spanish conquest and became popular worldwide. The fruit, once falsely thought to be poisonous, has been since shown to be rich in vitamins C, K and A as well as minerals like potassium and iron. The combination of vitamins, minerals and antioxidants found in tomatoes, when consumed on a regular basis, provide numerous health benefits including reducing inflammation and blood cholesterol. Lycopene, one of the most prominent antioxidants found in tomatoes, is linked with reduced risk of prostate cancer. Tomatoes also decrease biomarkers of oxidative stress which are associated with chronic degenerative diseases such as atherosclerosis, cardiovascular disease, cancer, osteoporosis and Alzheimer's disease. Genetic modification has been used with tomatoes to try and produce higher levels of flavonoids, antioxidants and to increase crop yield and shelf life. In our investigation of the tomato, we endeavor to create recipes and offer information which utilizes the inherent health benefits of the fruit, while also retaining the deep cultural significance the fruit has in traditional Latin American cuisine.

But I'm A Cheerleader: A Satirical Commentary on Mainstream Gay and Lesbian Stereotypes

Jessica McCormac [Lorena Russell], Literature

But I'm a Cheerleader, directed by James Babbit uses its niche within marginal films to comment the gay and lesbian stereotypes held by society. The film's beginning intervention scene outlining the signs of being a lesbian, which the main character, Megan, has been displaying, sets the satirical tone for the film. From there it examines what society perceives as the cause of homosexuality through the activities the campers are forced partake in. They examine their "root" or the perceived cause of their homosexuality as well as partake in gender role training and aversion therapy in order to correct a perceived mishap in their upbringing. The campers themselves are representations of each of the various stereotypes of what a lesbian or gay male looks and acts like. The conversion therapy and the characters are exaggerated to the point of ridiculousness, underscoring the ridiculousness of the notions they portray. The ultimate result of the jock and cheerleader being the ones to accept their sexuality serves to cement the film's purpose of showing that such stereotypes predict nothing about the person.

Synthesis of Combretastatin-A4 Derivatives Containing Amide Functionality: Amino Acid Attachment onto Carboxyl Groups

Nigel T. McCourry [Herman Holt], Chemistry

Amide forming reactions are compared to determine efficient synthesis reactions for the synthetic preparation of novel amide containing combretastatin-A4 derivatives that will be evaluated for their cytotoxicity, conformational stability, and aqueous solubility. The first amide containing CA-4 derivative developed contains the amide functionality at the site of the olefinic bridge of CA-4. Several synthetic methods were implemented to achieve the formation of this derivative, and their results were analyzed based on product yield to determine an amide forming procedure that will be used extensively in the synthesis of other novel amide containing CA-4 derivatives. Attempts currently underway to develop a new combretastatin-A4 (CA4) derivative containing a cyclobutane structure at the olefinic bridge and carboxyl group are discussed that are based upon a [2+2] photocycloaddition of *trans*-cinnamic acid derivatives containing CA4s phenyl substitutions. N-terminal amino acid attachment to carboxylic acid residues are examined as possibilities of both increasing the aqueous solubility of CA-4, and providing a method of directing CA-4 based therapeutics specifically to cancer cells. All compounds developed in this study will be evaluated on their ability to selectively inhibit microtubule formation for cancer cell lines associated with tumorous cancers, their water solubility, and structural stability.

Can Induction of Mood via Music Create Mood-Dependent Memory?

Wesley McCoy, Augustus Rushing [Tracy Brown], Psychology

Music in a major key is often experienced as emotionally positive whereas music in a minor key can seem depressing or negative. We investigated whether musical key (major or minor) induced mood effects strong enough to create mood-dependent memory. Participants were asked to read passages while hearing either major key music, minor key music, or no music. After a two-day interval, participants returned and completed a multiple-choice memory test on the passage read previously. Those who had listened to music in the study session had the same type of music (minor or major) while taking the memory test. Those who had not listened to music in the study session heard the same music as those in the music conditions (half major and half minor key). Differences in memory performance across groups who had or had not heard music in the study session indexed mood-dependent memory while controlling for the presence of music during testing. Differences between the major key and minor key groups indicated whether music or mood

effects are directionally specific (i.e. if negative mood induction causes decreased memory). Subjective ratings of music pleasantness, arousal level, oddness, and familiarity were taken following test sessions and included in data analysis.

Synthesis of Novel Tri-Methyl and Methoxy Indole Based *cis*-Combretastatin Analogs

Ben McDonald [Herman Holt], Chemistry

Combretastatins are a group of biaryl compounds that arrest tubulin polymerization in endothelial vascular tissue of neoplasms. The combretastatin A-4 is currently in phase II and III trials, but additional analogs are desirable for the optimization of bioactivity and cytotoxicity. A compound similar in structure to combretastatin has been reported as an effective anti-cancer agent, but lacks the defining features of combretastatin. The union of indole functionality with the key characteristics of combretastatin is therefore an attractive addition to the library of combretastatin analogs. The indole A-ring was synthesized in three-steps utilizing two substitution reactions as well as an Aldol condensation reaction. The resulting ester was then converted to the aldehyde. A modified Wittig reaction was employed to form the olefinic bridge between the indole A-ring and single, di-, and trimethoxy aryl B-rings, with the *cis* isomer being the favored product. Due to the time-intensive nature of isometric resolution, alternate methods of the exclusive production of *cis* alkenes are desirable. A palladium organometallic catalyst is being explored in the selective semi-hydrogenation of alkynes to *cis* alkenes. Additionally, the necessity of the trimethoxy moiety has been called into question. The methylation of anisole has proceeded successfully via nickel catalyst and its application to trimethoxy indoles is underway. Trimethyl and methoxy combretastatin indole analogs will be examined for their inhibition of tubulin polymerization and compared to other small molecules that inhibit tubulin polymerization.

The Effects of the Outdoors on Student Performance in a Fifth Grade Language Arts Class

Mollie McDonald [Irene Rossell], Environmental Studies

Increasingly, researchers have documented that children today suffer from fatigue, stress, and decreased attention spans. Richard Louv, the author of *Last Child in the Woods* (2005), blames these deficits on the increasing divide between children and nature. The objective of my research was to determine whether time spent outdoors is related to academic achievement in fifth grade language arts students. Student reading and writing scores from two fifth grade classrooms at North Windy Ridge Elementary School were compared. One class was taken outside for some language arts periods, while the other class remained indoors. Both classes

had the same teacher and language arts assignments. Results showed that there were no significant differences between the students who remained inside and the students who were taken outdoors, in reading scores or writing progress. However, the study period spanned a snowy winter that brought many disruptions to the school calendar, and the presence of academically gifted students in one classroom may have complicated the analysis.

Holy Guacamole: The Avocado is More than Just a Dip

Heather McGaha, Jessica Lynch, Stefanie McKinley, Ann Hyett, Elizabeth Manning, Trent Meyer [Amy Lanou, David Clarke, and Ellen Bailey]

Avocados are more than just guacamole. They are a great source of nutrients including dietary fiber, vitamins E, C, K and folate and are very low in cholesterol and sodium. Along with high nutrient density, avocados also provide health benefits from the important anti-oxidants like lutein and lycopene they contain. Avocados come from a tree of the Lauraceae family which is native to Mexico and was originally cultivated by the Aztecs. There are three main varieties of the avocado: West Indian, Guatemalan and Mexican and as well as an additional 500 less common varieties that all make up *Persea americana*. Starting in the 1890's, avocados were slowly introduced into the United States. The avocado is used frequently to add flavor to rice and beans as a garnish or can be used as a creamy, flavorful addition to tamales, sauces and salads. By providing this information through a colorful yet informative poster based on scientific research papers, we will inform others about avocados many varieties, uses and health benefits that it has to offer.

Attributes of Cover Rocks of Eastern Hellbenders (*Cryptobranchus alleganiensis alleganiensis*) in the South Mills River, North Carolina

Paige McNeal [David Gillett], Environmental Studies

Eastern hellbenders (*Cryptobranchus alleganiensis*) are large salamanders that inhabit fast flowing rivers and streams of the eastern United States. In order to conserve populations, a better understanding of preferred hellbender habitats is necessary. In this study, attributes of cover rocks selected by hellbenders were investigated in 500-m stretches of the South Mills River in North Carolina. Attribute preference was determined by comparing the characteristics of cover rocks occupied by hellbenders with characteristics of potentially suitable randomly selected rocks that were unoccupied. Rock size, mean and maximum crevice depth were significantly greater for occupied rocks compared to unoccupied rocks, which indicates that hellbenders select for these attributes. These attributes are likely

important in cover rock selection because they provide adequate protection and room for the hellbender to hide. There were no significant differences found for the percentage of rock embedded in substrate, mean and maximum crevice height opening, crevice orientation or range of crevice orientation.

Culture and Communication: Identifying the Influence of Communication on Cultural Behaviors through Arjun Appadurai's "-scapes"

Erin M. McWhorter [Mark West], Mass Communication and Journalism

What is culture? What is communication? The purpose of this research paper is to explore the effects of communication on culture outside the "global village" notion and center-to-periphery model of cultural flow. What other concepts exist that allow for a more specific assessment of various forms of communication and their influence on culture? The research topic includes the elements that compose culture and communication, as well as Arjun Appadurai's assessment of the international flow of culture, the disjuncture within which communication and culture operate, and the use of Appadurai's "-scapes" to analyze specificities of cultural behavior. From the research involved in understanding Appadurai's concepts of mediascapes, ideoscapes, and technoscapes relative to cultural transmission, and the application of each to a specific ethnographic case study involving international communication indicators that Appadurai's viewpoints of "-scapes" tend to be more explanative of cultural behaviors as part of a disconnected cultural flow, both globally and locally, despite the supposed interconnectedness created by advancements in communication and technology. Also included is a local application of Appadurai's viewpoints based on results from the Western North Carolina poll conducted during the 2010 fall semester at UNC Asheville.

The Importance of Transition in Mozart and Tarkovsky

Peter Mencher [Charles McKnight], Philosophy

In her article "*Solaris* by A. Tarkovsky: Musical-Visual Troping, Paradigmatism, Cognitive Stereoscopia," Julia Shpinitskaya very successfully maps the aural and visual thematic elements of Tarkovsky's masterpiece onto one another. However, it is from a side thought in her project that mine proceeds. Writing of the seemingly forgettable scene that depicts Burton driving through a futuristic city, Shpinitskaya briefly mentions that "(the city scene) might be read as a transitional sound between displays of the Earth and displays of *Solaris*." Hence, this paper will not only defend the importance of transitory elements in music and film but also exalt them in their ability to express the human experience of the "present." My two

main examples will be, musically, how Mozart uses transition in his sonata in G Major KV. 283 and, in film, the city scene of Tarkovsky's *Solaris*. After showing how these two masters of their art use transition, I will conclude that transition can be an expression of our experience in the present using Henri Bergson's theories on time.

O Tannenbaum: A Case Study of the Christmas Tree Market in Western North Carolina

Bethyn Vinh Merrick-Nguyen [Christopher Bell], Economics

This project is an industrial economic analysis of the Western North Carolina Christmas tree market, focusing on the retail and choose-and-cut markets of the Fraser fir evergreen. Using the structure-conduct-performance paradigm, the market will be investigated as to the industrial structure that leads to the competitiveness of the industry, the conduct of the individual firms as a product of the industrial structure and the ability of the industry to meet the needs of the market. Data is collected from national data banks as well as local farms for more area specific information. My gratitude to the farmers willing to provide hours of information via questionnaire and phone interview.

Reactions to Male and Female Antagonist in a Disney Animated Films and Sex Roles

Terra Midgett [Tracy Brown], Psychology

Research has shown inequalities between men and women still exist in many aspects of life including income, jobs, leadership positions and culturally expected sex roles. Studies on leader demographics still show that men are more likely to hold leadership positions than women, and women, when they do secure leadership positions, are typically in charge at lower levels. The portrayal of women leaders has also been examined in studies on workplace perceptions of male and female leaders, showing in cases that authoritative behavior in women leaders is viewed more negatively than equivalent behavior their male counterparts. The present study was designed to address these dynamics in the context of reactions to portrayals of female and male antagonists in Disney films in relation to a person's sex role identity as measured by the Bem Sex Role Inventory (BSRI). A total of 62 participants from UNCA (61% women, 39% men) participated. After viewing a short clip of a male or female antagonist, participants answered questions to assess their reaction to the antagonist, and completed the BSRI. Though individual BSRI classifications did not reliably predict reactions to the antagonists' portrayal, BSRI scores from the UNCA student population differed from BSRI findings throughout the US.

First Impressions and 18th-century Propriety in Austen's *Sense and Sensibility*

Elizabeth Milks [Merritt Moseley], Literature

In my thesis I will discuss the conduct codes of the late 18th century that expressed how a woman was expected to behave in society and how she was expected to act according to the rules of propriety, as found in Jane Austen's *Sense and Sensibility*. Because women were expected to act a certain way, first impressions in the novel tend to be deceiving. Characters conceal their true emotions as is dictated by propriety, and judgments often result in error. While Elinor Dashwood contains her feelings for Edward and acts according to the rules of conduct, she proves that she has been suffering greatly throughout the novel. Because her feelings have remained hidden, Marianne Dashwood does not believe that Elinor can possibly be suffering as much as herself. Marianne discovers at the end how important it is to control one's emotions in order to not be exposed to heartbreak. Characters must learn to look past first impressions, which prove to be inaccurate. Austen concludes that sudden judgments of other characters are incorrect, and that perhaps it is better to conceal one's emotions and live according to the rules of propriety in society.

Prufrock's Dilemma: The Modernist Approach to History and Psychology in Eliot's "The Love Song of J. Alfred Prufrock"

Rebecca Miller [Merritt Moseley], Literature and Language

In T.S. Eliot's "The Love Song of J. Alfred Prufrock," the persona of Prufrock evokes a sense of loneliness from the reader as he questions whether any type of emotional interaction with a woman could be possible. As a consequence of his self-doubting temperament, he forms feelings of isolation which are manifested as a constant need to question and reflect on his past actions. This study works on understanding T.S. Eliot's "Prufrock" through a modernist perspective and seeks to discover how the modernist obsession with history and psychology may have influenced Eliot's understanding of relationships with women. It also explores the direct connection between history and psychology by looking at the futility of the past and its relation to personal futility; the entrapment of the past and its link to self doubt and failure. Such a connection is significant because the relationship between history and psychology plays a large role in understanding Prufrock's obsessive self-consciousness which can be seen as a modernist dilemma. This research helps the reader understand how Eliot's modernist philosophies influenced the writing of "The Love Song of J. Alfred Prufrock," as well as some of his other works such as *Gerontion* and *The Waste Land*.

Investigations into Hydrogen Peroxide Oxidation Using a Homogeneous Cr (III) Catalyst

Phillip Montgomery [George Heard], Phillip Montgomery

Industry, government, and academia are always looking for cheaper, cleaner and more sustainable methods of carrying out chemical processes. This has led to a move toward green chemistry initiatives for environmentally benign syntheses. Methods including oxidation by hydrogen peroxide have become a popular topic of inquiry and the oxidizer of choice in green syntheses both for their reliability as an oxygen source and for its byproduct being water. Chromium (III) species with pyrazine-2-carboxylic acid (PCA) ligands have been studied to determine if complexes can form and to find if hydrogen peroxide will coordinate to the labile sites. Simple small chain and cyclic hydrocarbons, such as benzyl alcohol and 2-propanol are appreciably soluble in water. The target is to oxidize these alcohols to aldehydes and acids, and give special attention to differences that are caused by the presence of the different chromium species with PCA in a coordination or co-catalyst setting. UV-Vis spectroscopy and IR spectroscopy are the primary detection methods to be utilized to measure activity and reactions.

Alternative Osteoarthritis Treatment: An Examination of Glucosamine and Chondroitin

Daniel Moore [Noah Allen], Chemistry

Osteoarthritis (OA) is the most common form of arthritis in the world. It is the major cause of pain and functions limitation in the American population >60 years of age, yet long-term OA treatment studies are limited. Currently, the standard treatment for OA is symptomatic therapy combined with nonsteroidal anti-inflammatory drugs (NSAIDs). Unfortunately, these drugs have had suboptimal success and also have significant risks, i.e., cardiovascular failure, hemorrhage, and peptic ulcer disease. The dietary supplements glucosamine and chondroitin sulphate have been promoted by many general practitioners as safe and effective alternatives to treat OA symptoms, however these supplements are somewhat controversial because many studies fail to confirm their efficacy. In general, studies that measure effectiveness of glucosamine hydrochloride show no significant improvements in OA pain or function. Conversely, those studies which use the sulphated glucosamine form consistently produce positive results. The following paper will outline design limitations common with negative glucosamine studies and also suggest rationale for why the sulfate and not the glucosamine mediates the therapeutic effects towards OA.

Teaming: What Makes it Work?

Kelly Mundhenk [Nancy Ruppert], Education

The education of middle grade students is considered a direct result of the teachers of those grades. Today, teachers of middle grade students are being organized into teams of teachers in an attempt to better serve their students. After reviewing established theories on highly effective teams, surveys of exemplary teams were conducted in middle schools throughout North Carolina to determine the keys to their success. It was found that the characteristics of successful teams of teachers included aspects of communication, collaboration, consistency, and chemistry.

Narratives of Resistance Displacement and Emplacement In the Burton Street Community

Anna Lee Oblinger [Heidi Kelley], Anthropology

This paper is a study of the role of narratives in creating and maintaining culturally meaningful places and local communities. More specifically, this paper explores the forms of resistance particular to the Burton Street community, to development-induced displacement. This specific community in Asheville, North Carolina has a long history of not only physical displacement, due to Asheville's Urban Renewal program and highway expansion beginning in the 1950's and continuing into today, but also a history of symbolic displacement in the community's perceived "erasure" of cultural heritage. This ethnography is informed by extensive field research, informal and formal interviewing, and textual analysis in order to understand how the Burton Street community's sense of place grows stronger in light of displacement, as evident in the emergence of a community narrative of resistant emplacement. This research was conducted beginning in the spring of 2010 through the winter of 2011. The primary field site for this study was the Burton Street Recreation Center, and the primary informants have been elderly members of the Community Association. This research contributes to the growing field of place studies within anthropology that illuminates the culturally contested nature of places.

Stereoselective Synthesis of Aziridine and Epoxide Containing Analogues of the Combretastatins

Ryan A. Oliver [Herman Holt], Chemistry

The antineoplastic Combretastatin A-4 (CA-4) Phosphate is currently in advanced clinical trials investigating its tumor vascular targeting ability. The mechanism of this anti-vascular characteristic is the inhibition of tubulin polymerization commonly induced by this class of compounds. A recently published methodology of sulfur ylide mediated epoxidation was extended to several combretastatin analogs. This

method gave four oxidized analogs with *trans*-functionality in a modest yield, and with a *cis*-configuration in low yields. A *trans*-hexamethoxy epoxide analog was then submitted to a Blum Aziridination with good results. The stereochemistry of this sequence was then tailored to synthesize the corresponding desired *cis*-aziridine. Four epoxide analogs were examined for their ability to inhibit tubulin polymerization; preliminary results indicate that these molecules are active in the micromolar range. Discussed is the sulfur ylide mediated epoxidation of the combretastatins, and the methodology for a diastereoselective synthesis of *cis*-aziridine analogs from the corresponding *trans*-epoxides using a variation on the Blum aziridine sequence.

Virginia Woolf's Relationship to Language in Fiction and Life

Erin O'Loughlin [Merritt Moseley], Literature

Both Virginia Woolf and her writings have been analyzed from many different perspectives- there seem to be an endless amount of critics that have investigated her life. This presentation will focus on Woolf's relationship with language as understood by in depth examination of both her public and private writings. This research will illustrate that Woolf's relationship to words grew to be rewarding, though she dealt with many challenges before she was able to reach that goal. Through discussion of *To The Lighthouse*, *'Kew Gardens'*, her autobiographical essay *'A Sketch of the Past'*, a recording of her essay *'Craftsmanship'*, and finally her two final suicide notes, Woolf's reliance on the therapeutic relief writing had on her will be explained.

Pupil Dilation Responses to Suggestive Pictures as a Function of Relationship Status

Grant Ostrander [Tracy Brown], Psychology

Pupil dilation to sexually suggestive pictures has been interpreted as a reflection of involuntary autonomic arousal relating to excitement or desire. The present study examined whether this response is mediated by the relationship status of the viewer. Will viewers who self-report as being in satisfying and committed romantic relationships fail to show the pupil dilation effect? Male subjects viewed a series of 40 pictures with 8 suggestive pictures interspersed, and pupil dilation was recorded for the first 6 seconds of each presentation. Responses to suggestive and control pictures were compared across individuals who self-reported their relationship status. Results showed that pupil dilation increased more rapidly and more completely in the first 5 seconds of viewing suggestive pictures, with the effect peaking at about 4 seconds after picture onset. Findings for relationship status were inconclusive, suggesting that pupil dilation responses are independent of relationship

status. This result would be expected because of the low-level autonomic arousal indexed by pupil responses and because other research indicates the arousal effect is fairly non-specific.

An Evaluation of Bolivia's Education System

Eleanor Ouellette [Robert Tatum], Economics

The Commission on Growth and Development identifies twelve crucial characteristics necessary for economic growth and development within a country. These characteristics are defined as the "Twelve Pillars of Competitiveness." These factors enable economies of differing stages of growth to maintain stability and continue to progress. The fourth pillar, as defined by The Growth Report, refers to health and education. The report implies that without a well-functioning education system, a country is hindered from development. During UNCA's International Studies course in Montero, Bolivia, we witnessed the extent of extreme poverty which is largely due to institutional shortcomings regarding the education system. Based on our on-site experience, we recognize that there exist numerous deterrents keeping Bolivia from economic growth; however, we believe that if improvements were to be made to the education system, Bolivia has the potential to obtain greater economic growth.

Rain over Memphis

Matt Owens [Lori Horvitz], Literature and Language

Balance and the Vestibular System

Maria Daniela Pallares [Patrick Foo], Psychology

The ability to place one's body in various positions while transitioning from one movement to the next requires precise coordination between different sensory motor systems. This precise coordination is referred to as balance. Balance is obtained when vision, proprioception and the vestibular system work in synchronicity with each other. Information coming from all three systems is processed by the brainstem and cerebellum resulting in postural changes in the body to offset the changes in the environment. Out of all three senses, the vestibular system is believed to supply the primary information used to establish one's internal sense of equilibrium and posture around which movements are controlled. Given this primacy, how does the vestibular system adjust to impairments and deficits? Will losing one's vestibular system enhance the role vision and proprioception play in maintaining balance equally? How can knowledge of loss of balance help us define strategies to preserve it?

Using the Rossby Radius of Deformation as a Forecasting Tool for Tropical Cyclogenesis

Philippe Papin [Chris Hennon], Atmospheric Sciences

Tropical cloud clusters (TCCs) are large areas of deep convection in the tropics that can develop into tropical cyclones, a process called "tropical cyclogenesis". Theoretically, the Rossby Radius of Deformation (RROD) can be a useful parameter in predicting when this will happen. RROD is defined as the critical radius where latent heat is unable to be dispersed away from the TCC by gravity waves. Beyond this threshold value, gravity waves disperse the latent heat too far away to support the intensification of a vortex. In this study, RROD is used in conjunction with a new TCC dataset to investigate if RROD is useful in forecasting tropical cyclogenesis. The resultant RROD was divided by the radius of the TCC to yield the Rossby Radius Ratio (RRR). Results show that roughly 95% of all developing TCCs become tropical cyclones with a RRR value of 47 or less, while this same value is only found in 60% of all non-developing cases. Using a threshold RRR value of 17 also produces the highest Heidke Skill Score, a reliable skill score for forecasting TCG. Inputting this predictor into other studies using discriminate analysis could improve the prediction capabilities of TCG.

From the Ground Up: Wendell Berry's 'Feminist' Theory

Paige Paris [Merritt Moseley], Literature

For fifty years as an essayist, novelist and poet, Wendell Berry, an outspoken small farmer, has opposed the destructive practices of what is commonly known as conventional, or industrial, agriculture. Berry's work is characterized by his clear, graceful voice and use of a marriage metaphor. In many of his works, he situates his characters and subjects within this framework to demonstrate the sacred ties of friendship, matrimonial love between men and women, and most importantly, between humankind and the earth. At times, however, this use of the marriage metaphor proves sexist, ultimately creating a polemic argument surrounding the ostensibly sexist semantics which detract from his main argument against industrial agriculture. An analytical reading of poems from Berry's collection, *The Selected Poems of Wendell Berry* and an essay entitled "Body and Earth" provide most of the material for my effort to prove that Berry ultimately fails in his effort to unite the masses in a rebellion against a sexist society and destructive methods of food production.

Menstruation and Medicine: Social Opinions in the Modern and Ancient Greek Contexts

Charlotte Pate [Anthropology], Sophie Mills

This paper covers the topic of menstruation in the ancient Greek world by exploring the medical texts of Hippocrates, namely, *Diseases of Women 1* from the *Corpus*. It summarizes the medical diagnosis of menstruation in the ancient world, by analyzing Hippocratic medical texts and the interpretations of Helen King and Lesley Dean-Jones. This paper compares Hippocrates' description of menstruation to the modern outlook on menstruation as observed in advertisements for birth control and feminine hygiene products. Hippocrates states in *Diseases of Women 1* that women who have shorter, lighter, and less frequent periods of menstruation are more like men and are uninterested in having children. Likewise, in the modern world, menstrual-suppressing birth control pills promise a more successful, stereotypically masculine, life as a result of having fewer periods a year. I also observe that there is a sense of disgust for the modern period which was also present in the ancient world. Advertisements for feminine hygiene products stress the sanitary nature of their product in attempt to make up for the uncleanliness of menstruation. I conclude that some of Hippocrates' views of menstruation are very much alive today in modern American culture.

Missing Parts: The Fragmented Form

Kevin Payne [Tamie Beldue, Megan Wolfe], Art

The urge to recreate the human figure through art has existed since prehistoric times. From the Venus of Willendorf, dated 24,000 – 22,000 BC to the sculptures created by contemporary artist Valerie Lyle in 2009, history is replete with artists and craftsmen who sought to represent the human form in unique ways. The purpose and meaning of these creations vary according to the culture and audience. Faith and spirituality have always played a large role in the creation of figurative sculpture and still do today. Artists draw on deep seeded beliefs, emotions and their surroundings to create works that mirror their perception of life. This series titled The Fragmented Human Form, suggests the idea that life is a continual process involving faith, pain, joy, grief and chaos that eventually ends in death. This research examines the history and ideas behind the creation of human figurative ceramic sculptures and explores how modern culture lends itself to influence the artists work today. Through a unique combination of realistic detail, exaggerated features and low fire glazing techniques, the beauty and fragility of life are demonstrated.

“If There is Ever a Dire Need”: The Use of Story in Building Community, Civic Education and Community Service Learning

Ashley Pearce and William Carrington [Kenneth Betsalel], Political Science

Our project reports on the use of a collaborative community newsletter to build community. According to Robert D. Putnam (2000) and others, American communities face an ongoing crisis of civic apathy and lack of the necessary social capital in order to accomplish positive social change. Based on interviews, historical documents and participant observation this project explores how the writing of a newsletter and the stories contained within it can be used to develop and facilitate communication within one neighborhood. We, as university students, have created a community newsletter in collaboration with a West Asheville neighborhood, Burton Street. From this newsletter, we have identified the role that politics plays in storytelling, as well as how effective it is to use stories in leadership collaboration. We have also examined how different groups and interests are represented in the newsletter, how power was used in putting the newsletter together, and how the newsletter represents different power groups in the community. A number of problems like the relationship between the university and the community, the effectiveness of newsletters, how to generate participation, what stories have an impact, and what stories people are willing to tell are also explored. Through the examination of Aristotelian argument (Logos, Ethos, and Pathos), literature pertaining to community building and the nature of community, as well as true community involvement, this paper discusses the role of listening and understanding stories from different angles, and how a newsletter can be a site of mutual understanding. Through the use of quantitative research and qualitative ethnographic fieldwork, storytelling, in the public realm, becomes the revelator of the virtues and shortcomings of reaching social justice and how to bring diverse groups of people together through mutual understanding.

Fighting Stereotypes with Stereotypes -- How Appalachian Author Lee Smith plays with her readers

Natalie Pearson [Merritt Moseley], Literature

Appalachia has always been an “Othered” region of America. Literature and popular culture have perpetuated this “Otherness” through stereotypes. These stereotypes – such as the beautiful yet uneducated mountain flower, and the overall-wearing, pipe-smoking country boy – are often offensive to the people of Appalachia and the culture they have created. However, there are a few contemporary Appalachian authors who strive to overturn these stereotypes. In my research, I

will be exploring and analyzing one of these authors, Lee Smith. Focusing on two of her Appalachian novels, *Oral History* and *The Devil's Dream*, I will show – using the ideas of literary theorist, Stanley Fish on reader reliability and belief systems, and a bounty of other Appalachian-based secondary sources – how Smith uses obvious stereotypes in her works to ironically produce new ideas in her readers. As a result, readers' long-term beliefs are subject to change and enduring stereotypes that are prolonged by other literature and popular culture are disrupted.

Guatemala: Education in a Multicultural Country

Rosa Maria Pedro Vicente [Elena Adell], Spanish

Guatemala is a country in Latin America with many struggles, with focus placed on the bases of multiculturalism, in contemporary times. With half of the Guatemalan population being of Mayan indigenous descent and the other half of mixed race (or European descent/ Spanish-speaking), there are several disagreements between these main groups. There is specifically great turmoil in the education system. There is conflict between maintaining cultural traditions, on behalf of the indigenous population, yet facing the struggles that arise due to modernity in current times. Themes including equality, identity and nationalism have surfaced in reconstructing the education system in post-war Guatemala. It is an issue within the country on how to best educate its citizens while providing an equal, high-quality education for everyone in this multicultural country.

The Healing Power of Music

Augusta Petrick [Patrick Foo], Psychology

Music therapy has proven helpful for people with many different types of disorders: stroke, schizophrenia, and even autism. Music provides movement, motivation, complex thought and stability that patients need. Different aspects of music therapy make it suited for many different disorders. In stroke patients the physical movement of playing an instrument has been an excellent way to help them regain movement in affected limbs. Music can also improve mood, social interaction and movement for these patients. In schizophrenics, musical rhythms provide structure and some amount of predictability and thus can lead to reductions in negative symptoms, and aid in motivation. Vocals and composition make a great creative outlet for autistic patients, leading to improvements in social interaction, reduction of behavioral problems, and enhancing creativity. Just the nature of music may be enough to coax otherwise introverted patients to enhance social interaction and improve their ultimate outcome.

Heteronormative and Queer Projections in Mainstream Film

Auburn Petty [Lorena Russell], Honors Special Topics: Queer Films

Queer identity is rapidly becoming part of mainstream society, especially through popular film. Although homosexuals have been portrayed in the movies for quite some time, more recent portrayals of queer identity and presence are quite different than in the past. Instead of just supplying comic relief or interesting plot twists, LGBTQ characters can now be found at the forefront of mainstream films, such as *Boys Don't Cry*, *The Kids Are Alright* and *Brokeback Mountain*. Despite the fact that these films seem to portray queer lives in revolutionary ways, these films are still profoundly influenced by heterosexual ideas and culture. I will argue that despite the many arguments to the contrary, the most revolutionary of these films is in fact *The Kids Are Alright*. Despite their notoriety as queer films, *Boys Don't Cry* and *Brokeback Mountain* do not actually challenge heterosexual society, as they seem to do — instead, they idealize it and glamorize it — while *The Kids Are Alright*, effectively mocks homosexual stereotypes and heteronormativity.

Characteristics of the Working Poor: Perceptions from the VITA Experience

Katlin Pickering and Alyssa Strazanac [Joe Sulock], Economics

VITA is an IRS volunteer program that provides free income tax preparation assistance to low to moderate income taxpayers. VITA clients can be considered part of the working poor class. Students began the process of certification last semester to be properly prepared to help taxpayers beginning in February. All student volunteers had to complete computer training and pass the certification tests to participate. A number of common themes surfaced during the interviews with the volunteer participants, such as perceptions of clientele and understanding of the tax code. The presentation will include additional perceptions that explore research questions and policy issues raised by our VITA experience. Our presentation will be titled "Characteristics of the Working Poor: Perceptions from the VITA Experience", and is based on our participation in the VITA program of the IRS. This presentation will precede Jon Griffin and Samuel Riddle's presentation titled "Research Issues Involving Tax Preparation of Low-Income Households."

"Passing Trucks"

Amanda Anne Platt [Lori Horvitz], Religious Studies

A creative non-fiction story that follows the thoughts of the narrator as she drives West on Highway 40 late at night. The piece is a meditation on growing up, growing old, and letting go of expectations.

Language and Theory of Mind in Preschool-Aged Children

Samantha Pope, Blane Garrou, Kylee Frye, Sarah Crittenden [Melissa Smith], Psychology

As most false belief tasks are verbal, there is a growing need for nonverbal tasks as a means of understanding Theory of Mind (ToM) development. Nonverbal tasks can yield insight into verbal task demands that may hinder demonstration of ToM understanding among young children or those with linguistic deficits. The present study examines the relationship between concurrent verbal and nonverbal ToM tasks as well as grammar and vocabulary. Participants are preschool-aged English-speaking children. They completed three verbal (Sally-Ann, Unexpected Contents, Mean Monkey) and two nonverbal (a variation of Call & Tomasello's Monkey Hiding Task & a silent video enactment of a Sally-Ann task) ToM measures. Two language measures were used (PPVT-IV and de Villier's Sentential Complements Task (SCT)). The purpose of the study is to develop assessments of ToM that use minimal verbal cues in order to eliminate potential biases of language from testing. Findings from this study will contribute to a growing body of knowledge on the important relationship between language and cognitive development, with the potential to impact research methodologies used with atypical populations.

Remediation of Coal Fly Ash Using Two Plant Varieties to Hyperaccumulate Heavy Metals

Virginia Porden [Sally Wasileski], Chemistry

The use of common plants for phytoremediation to detoxify coal fly ash provides the potential for an inexpensive and widely applicable means of selectively removing toxic the metals present (As, Ba, Ca, Cr, Cu, Pb, Mg, Mn, Ni, Se, and Zn). Coal fly ash is the byproduct of coal fired power production and heavy metal concentrations were determined through reference analysis and found to exceed recognized minimum safe standards. Last year the United States produced approximately 70 million tons of coal fly ash. Current efforts to reuse this material account for approximately 45% of all the coal fly ash produced, while the rest is stored. This project aims to determine the feasibility of detoxifying coal fly ash to make it viable for use in applications other than construction and textiles, such as

a soil remediator for non-food crops. In this study, the ability of Alpine Pennycress (*Thlaspi caerulescens*) and Indian Mustard (*Brassica juncea*) to hyperaccumulate the toxic metals found in the Lake Julian coal fly ash will be investigated. Samples of coal fly ash were digested and analyzed to establish baseline values, but more analysis is needed. Samples of coal fly ash, plant material, and contaminated planting mix will be tested to determine whether or not it is possible to remediate coal fly ash using this experimental design.

Microscopic Marvels: Living Architecture and the Imagination

Carly Powell [Virginia Derryberry, Robert Tynes], Art

Historically, the ocean has been considered an untamable force attributed with powers of mythic proportions. Despite scientific advances, the ocean, as seen by popular culture, has remained a place where fact and fiction collide. This is most prominently seen in films, such as Spielberg's *Jaws* and Disney's *The Little Mermaid*. This research investigates this intersection of fact and fiction within the human imagination through a combination of a scholarly research paper and a series of oil paintings focusing on commonly unknown or overlooked marine life such as plankton. The paintings largely feature diatoms. Diatoms, a type of phytoplankton, are microscopic, living examples of intricate, silicon-based architecture, which to the naked eye appear as brown sludge. The intent of the series is to remain true to the underlying structural geometry of the organisms, while bringing out their most unique, alien, and defining qualities in the imaginative spirit of the human psyche. The artist enhances the already present architectural forms of the diatoms with imaginative embellishments of pattern, color, organization, and line, intentionally blurring the boundaries between a factual or fictitious understanding of these creatures. This serves to unite the seemingly contrasting and equally important worlds of scientific and imaginative thought.

Queering I Am Love

Andrew Purinai [Lorena Russell], Honors Special Topics: Queer Films

Luca Guadagnino's film *I Am Love* explores the downward spiral of an haute bourgeoisie family's position in society, and how queer desire affects these relationships. The foundation in which some of the characters embrace their queer identities is built on the capitalistic and patriarchal roots that bind the family together, and constitute the status quo values of a greater Westernized society. Initially the film presents the family and their lifestyle as immaculate and privileged, but as the plot unfolds three of the family members act out in ways that deviate from their

assigned identities. Elisabetta Recchi comes out to her mother Emma as a lesbian, rousing an interest in Emma to also seek out an alternative to the opulent cage her life has become. Emma's subsequent affair symbolizes a rejection of her prescribed role as the proper upper class wife and mother as given by her husband Tancredi, and in a larger sense by establishment of the Recchi family. The son Edoardo deviates from the family tradition when he prioritizes ethics in business over increase in personal profits. These character's respective shift from performing their assigned roles to an embrace of a truer self-identification points to how queer desires can effectively challenge the social supremacy of the patriarchal capitalist arrangement.

Health Care in America: A Moral Reform

Tiffany Reams [Brian Butler], Philosophy

The problems within the American health care system have reached a substantial apex. Work to reform its administration and distribution is an essential project to ensure its future longevity and success. This paper examines the use of moral philosophy in discussing reform to the medical system in the United States. The focus is divided among three problem areas involving the concepts of autonomy, equality, and accountability. The traditional approach of liberal individualism's characterization of these issues, illustrated in Norman Daniels' *Just Health* (2008), is contrasted with the work of alternative ethical and political moral theories. Sarah Hoagland's concept of *autokoemony* used alongside Virginia Held's explanation of care ethics is used to revise outdated ideas about patient autonomy in a health care setting. Nancy Fraser's status model and theory of participatory parity resolves the issue of inequality in medical resource distribution. Also adding a different perspective, Iris Marion Young's theory of participatory democracy illustrates how public accountability should be constructed within a reformed medical system. Overall, this paper argues for the involvement of these moral principles in reforming both the American health care system and its responsible communities.

One Nation Under God: A Comparative Analysis of the Effects of a Religion Influenced Political Climate on Women's Rights

Ashleigh Redmond [Surain Subramaniam], International Studies

The relationship between women and organized religion has always at best, been tenuous. The sacred texts Christianity, Judaism, and Islam all have strong elements of patriarchy, and with only a few exceptions, the subsequent practices of those religions are have been traditionally patriarchal as well. Combine the patriarchy of religion with the male-dominated spheres of politics, and the rights of women are only weakened

further. State sanctioned religions are more common in the Middle East, but the relationship between religion and the political state continues to be strong in the West. This paper is an analytical comparison between the rights of women in Ireland and the United States. While Ireland has a codified relationship with Catholicism as outlined in its state Constitution, the United States, while often remarked to have been influenced by a "Judeo-Christian" tradition, is constitutionally separated from openly sanctioning a state religion. This paper will research 1) the relationships between organized religion in Ireland and the United States; 2) the rights of women in Ireland and the United States; 3) how religion affects the political rights of women; and 4) the strategies women use to achieve and maintain social and legal rights within their respective religious and political spheres.

A Refutation of the Augustinian View of Evil

Sarah Beth Reece [Duane Davis], Philosophy

Augustine's response to the problem of evil comes from his attempts to distance himself from Manichaeism. As a result, Augustine defines evil as a privation of good that is caused by man's free-willing of the original sin. As relayed by Hick, Augustine's theodicy is inadequate, first because it merely employs positive semantics to define evil as a privation of good, second because it does not convincingly differentiate between natural and moral evil in an empirical sense, and third because its origins in original sin are both self-contradictory and absurd. Robert F. Brown provides an in depth analysis of this absurdity. All of these points lead to the conclusion that Augustine's *privatio boni* doctrine is flawed. Questions raised within the essay (such as God's accountability for original sin) also make it such that Augustine's theodicy, which supports God as an all-powerful, all-loving being coexistent with evil, is compromised by his very stance on the problem of evil.

The Moist-Unsaturated Froude Number as a Precipitation Forecasting Aid during Northwest Flow Snowfall

Justin Reid [Douglas Miller], Atmospheric Sciences

The moist-unsaturated Froude number (F_w) is presented as an aid for understanding precipitation distributions over western North Carolina during Northwest Flow Snowfall (NWFS) events. NWFS presents a unique challenge to weather forecasters because of complex geographic precipitation patterns resulting from low level atmospheric interactions with local topography. F_w is an energy index that is used to describe air flow around a barrier, such as a mountain. The higher the F_w , the more kinetic energy present in the atmosphere, which induces lift over that barrier. Since lift over mountain barriers is the key dynamic that produces NWFS, F_w

can be used to understand precipitation distributions during NWFS, by identifying regions stronger and weaker lift. To accomplish this analysis, data provided by the Sounding-based Experiment in Mixed Precipitation Events (SEMPE) project, and from the Weather Research and Forecasting (WRF) computer model are used to find the Fw values for a specific NWFS event, so that a qualitative comparison to observed and forecasted precipitation can be made. Also, ArcGIS software is used to create a map comparing Fw with real world observations made during the event. Finally, possible weather forecasting applications and future work are proposed.

Factors that Predict Conversational Style in Men and Women

Spencer Revels and Kate Kastelberg [Tracy Brown], Psychology

In order to clarify gender-specific differences in communication style in a small group setting, we videotaped short (15-minute) conversations in small groups of four or less, mostly consisting of two female and two male participants. Videotapes were then coded, for each participant, for total speaking time, the frequency of interruptions, conversational overlaps, conversational turns, hedges, pauses, use of gestures, and eye contact, and then analyzed as a function of gender, group membership, and demographic variables. Previous research predicts that male participants will be more likely to overlap and interrupt the speech of another person and female participants will be more likely to use conversational hedges. It was predicted that men would exhibit more instrumental speech and language tactics, while women would exhibit more expressive speech and language tactics during the conversation.

300 Naked Men: The Production and Fetishization of Masculinity in "300"

Nicholas Rhoades [Lorena Russell], Honors Special Topics: Queer Films

Zak Snyder's "300" is presented to an audience of young, heterosexual men, and goes to great lengths to prove it's heterosexuality. Among other things, there is an egregiously long sex scene between Gerard Butler and Lena Headey, and slurs against the Athenians as "boy lovers." However, the majority of the movie is scenes of sweaty, smooth shaven, almost naked men in battles elaborately choreographed to show off their musculature. This, combined with it's intended audience of young men, seems counter to it's professed heterosexual leaning. Furthermore, it is interesting to note that the heroes of the film are the ones with the most perfect bodies, and the men they are fighting are either masked, effeminate, or deformed. Xerxes, the

primary villain of the film, is certainly not a traditional image of masculinity, and physically deformed characters are mostly portrayed as untrustworthy and lecherous. The film, therefore, serves the mythic function of delineating ideal masculinity. It does this to the point of fetishization, using slow-motion sequences that put an erotic depiction of violence and "perfect" masculinity on full display. I plan to explore this concept, examining the way the film produces a masculine identity and questioning the line between homosocial and homosexual in said identity.

Policing the Community: Interactions of Nation and State through the Lens of Police Presence in Asheville Communities

Emily Rhyne [Heidi Kelley], Interdisciplinary Studies

Inherent in the concept of "nation-state" is a tension-filled dichotomy between the nation (representing the cultural community) and the state (the effective government). Since August 2010, I have been investigating this tension through the microcosm of police interactions in Asheville communities, where the police represent an arm of the state as it comes in contact with the community (representing the nation). This ethnography, focusing on neighborhoods with high police presence, endeavors to present a range of perspectives from major players in the community and in the police force. It will feature ideas and excerpts from interviews with interested community members, business owners, and police officers themselves, as well as my own observations at checkpoints and other occasions of contact between police and the community. Using concepts such as post-colonial thinker Renato Rosaldo's "cultural citizenship," I focus mainly on immigrants (both documented and undocumented) and people of color as they locate their own sense of belonging in the U.S. nation-state. This paper is also oriented towards a deeper understanding of possible alternative policing methods such as concepts of "community policing" that work towards bridging the gap between the police and the communities they work in.

Love, Contact, and Peace in the Hour of Worship

Andrea Rich [John Wood], Anthropology

In 2002, The First Congregational United Church of Christ of Asheville approved an Open and Affirming covenant which states, "We believe that all persons are created in the image of a loving God, who not only creates but also embodies, embraces, and celebrates diversity. As disciples of Jesus, we are called to restore justice wherever God's creation is broken or divided." For the members of the congregation, the hour of worship is a mixture of various forms of contact. Some bits of this mixture are scheduled; some pieces are so familiar that they form without anticipation or

afterthought; sometimes an instance is meaningful and spontaneous. Whatever the form, contact is an important part of the hour of worship. Verbal, prayerful, and physical contact usually overlap and are always related temporally. If an instance of one takes place autonomously to the others, it is still preceded and followed by other forms of contact. This relation, then, is based on time. The amount and frequency of the divisions of time dedicated to contact bare testimony to its significances.

Optimal Foraging of Wood Frog (*Rana sylvatica*): Can Larvae Distinguish Between Minute Differences in Patch Quality?

Andrea Rich [James Petranka], Biology

The benefits of foraging can be optimized by feeding in high-quality food patches to maximize energy intake per unit time. This theory functions under the assumption that animals can distinguish among food patches that vary in quality. Anuran larvae, the subject of this study, have been shown to forage optimally. Among the top threats to anuran larvae that live in temporary ponds are predation and desiccation. The likelihood of falling victim to these threats, however, decreases as larvae grow and near and metamorphosis. The purpose of this research is to discover if wood frog larvae (*Rana sylvatica*) can distinguish among fine differences in patch quality based solely on food density. We used agar-filled Petri dishes with 20 food levels, including one control with no food, to test this. We hypothesized that the number of larvae feeding on Petri dishes would increase as the density of food on the Petri dishes increased. A regression analysis showed a positive correlation between the number of feeding larvae and food level at low food levels. Perplexingly, this trend did not continue into the higher food levels. Such results have not previously been observed in anuran species.

Synthesis of Novel Cyclobutane Containing Combretastatin Analogues

David Ricker [Herman Holt], Chemistry

Cyclobutane containing anticancer drugs are a relatively new development. Two of the more widely known classes of cyclobutane containing molecules that have been used in cancer research are cyclobutane containing peptides (CBPs), which are metalloproteinase inhibitors. CBPs have been indicated to cause increased cytotoxicity in various types of myelomas and lymphomas. The other class containing cyclobutanes includes several natural product derivatives, namely Endiandrin B and Cinbalansan that bind to glucocorticoid receptors and have shown significant cytotoxicity in human lung cancer cell lines. The molecule β -Truxinic acid formed by the photocyclization of two trans-cinnamic acid monomers

gives the A+B ring functionality of Combretastatin A-4 and in addition creates a cyclobutane in order to maintain cis conformation of the ring system. Synthesis of β -truxinic acid derivatives that more closely mimic the A+B rings of CA-4 are the eventual synthetic goal. This will be accomplished by taking *trans*-cinnamic acid derivatives with necessary substitutions on the phenyl rings and photocyclizing them to form the anticipated β -truxillic acid derivative.

Dew Point Temperature Variations at Asheville, North Carolina in April 2008

Gustavo Riggio [Alex Huang], Atmospheric Sciences

Dew point temperature represents the moisture content of the air. Although dew point temperature is generally positively correlated to the changes of air temperature during the ozone-monitoring period (April through October) in 2008, rapid and large variation of dew point temperature have been observed in the Western North Carolina region when a high pressure system is dominating in the afternoon. Analysis of the weather data indicates that the difference between air temperature and dew point temperature can be higher than 20 degrees Celsius during these high pressure events in April 2008. In this project, the statistical analysis and study of weather maps will be performed in order to understand the processes responsible for the large variations of dew point temperature in April 2008. Additionally, mean sea level pressure and ozone data will also be analyzed to study the statistical relationship among the variables.

The Gay Male in Film

Hannah Ritter Paulin [Lorena Russell], Honors Special Topics: Queer Films

The depiction of the gay male character has seen a lot of changes since the early days of film in the 1930s. This presentation will specifically focus on three films: Top Hat, The Boys in the Band, Mysterious Skin. Top Hat, produced in 1935, is a comedy film starring the dancing duo, Fred Astaire and Ginger Rogers, and is about his fawning over the female character. The queer aspect of the films comes from the character of Alberto, an Italian fashion designer. The Boys in the Band was produced in 1970, and is based off of Mart Crowley's play of the same name. The film, which has an ensemble cast of actors such as Leonard Frey and Cliff Gorman, is about a birthday party in which the majority of the attendees are gay men. Finally, Mysterious Skin, produced in 2004, stars Joseph Gordon-Levitt and Brady Corbet, is about the adolescent lives of the two boys after they were both sexually abused by their baseball coach. Although there has been a lot changes in the depiction of the gay male character since the early days of cinema, through the

Stonewall Riot-era, and to the present day, not all of those changes have been positive.

Building and maintaining a map database for use in the expansion of the Western North Carolina Report Card on Forest Sustainability

Robert Rives [Todd Pierce], Environmental Studies

The Western North Carolina Report Card on Forest Sustainability is a collaborative work between UNC-Asheville's National Environmental Modeling and Analysis Center (NEMAC) and the US Forest Service Southern Research Station. The goal of this project is to produce a set of maps and supporting documents that demonstrate a comprehensive understanding of economic, ecological, biological, and social information relevant to the region. The Report Card will be a useful tool in the planning of future development legislation and will be shared with community organizations and state and local governments. Due to previous funding constraints, the first edition of the WNC Report Card on Forest Sustainability was limited to three councils of government (Land of Sky, Southwestern Commission, NC High Country) and included only eighteen counties. Upon the first edition's success, the NC Mountain Resources Commission requested an expansion of the project to include all twenty-seven mountain counties. Using ESRI's ArcGIS software, each map file in the existing database was extended to include the new counties, as well as create additional maps not included in the first edition. The resulting WNC Report Card map database will be used to produce a second edition of the Report Card and will be added to existing online mapping tools through NEMAC's website.

Assessing the Effectiveness of Peer Education on Understanding of Relationships Between Sex, Gender and Sexuality

Melody Rood, Nataka Wiszczur [Amy Lanou, Karin Peterson], Women's Gender and Sexuality Studies

This research project examines the effectiveness of a student-facilitated workshop on sex, gender, and sexuality in an academic setting. Using a lesson plan created by the researchers, the peer educators have led multiple invited workshops in undergraduate classes highlighting the differences between sex, gender, and sexuality while focusing conversation on social constructions and binaries. One of the purposes of these workshops is to promote of a more gender diverse campus environment that provides a safer space for students with non-conforming gender identities. Through the use of an anonymous feedback instrument, the researchers have assessed student's understanding of these concepts and plan to use this information to demonstrate the importance of this specific type of lesson for students' personal growth. as well as In

conclusion, this presentation showcase the findings of this assessment and discuss the effectiveness of peer education about sex, gender and sexuality in a classroom setting. Findings will be used to develop an effective workshop curriculum.

All Men are Born with a Death Sentence: Reconciling the Absurd in Albert Camus' *The Stranger*

Samuel Rosen [Blake Hobby], Literature

The Stranger deals with the philosophy of Absurdism, which states that all human efforts to find meaning and order are inevitably useless because the universe is chaotic without meaning. The protagonist Mersault does not believe that life has any meaning, and his attitudes and actions reflect Absurdism. His recognition of the absurd nature of the universe allows him to be content with his life. After being convicted of a death sentence for murder, Mersault concludes that he has always been happy because he is sure of his fate. He recognizes that all meaning is artificial, rejecting religious consolation. He understands the limitations of life and is comfortable with the inevitability of death. The Absurdist dilemma is a source of anguish, and Mersault is liberated from this struggle. This essay will argue that Camus creates such a character to illustrate that it is not necessary to create meaning in order to find happiness. Instead, an individual can embrace life for what it is. The Absurdist dilemma is reconciled once an individual encounters the absurdity of the universe and accepts it.

Behavioral Mimicry: Why and When We Do It

Madison Savage [Patrick Foo], Psychology

Behavioral mimicry, which can be an unconscious or conscious behavior, is the act of copying another's mannerisms and body postures. Research has shown that this kind of mimicry is very common and influences the relationships that people form with others in both the short and long term. The person being mimicked by another individual is more likely to like or act positively toward that individual. When an individual wants to be liked or be friends with another individual they may mimic that person more than others. On the contrary, people who do not wish to interact or become close to another individual may mimic them less or none at all. Behavioral mimicry may have originated itself as an evolutionary advantage, but even in advanced society today behavioral mimicry seems to be just as prevalent and influential.

Kollabit.com

Scott Scerri [Charles Massey], Computer Science

Kollabit.com is a new social networking platform and collaborative media API that I have been developing as a personal and senior project. Using the power of PHP,

SQL, Javascript/AJAX, HTML5, CSS3, the goal has been to create the foundations of a new cross-browser compliant online application and social media experience for users. This has entailed writing a functioning social network application as well as devising complex database structures from scratch, as well as the implementation of unique and innovative geo-spatial functionality that has never been integrated before in a social network context. I have long term goals for making Kollabit.com a scalable, profitable, and expanding business model.

The Bicycle Sets Me Free: Transportation Choices of Women in Amsterdam

Allison Schad [Heidi Kelley], Sociology and Anthropology

The bicycle is a convenient, safe, and affordable mode of transportation that serves to liberate women from gendered violence in the streets of Amsterdam. During the fall of 2009 to the summer of 2010, ethnographic methods of participant observation and in depth interviews with twenty-five Dutch informants were conducted to inform this study. Amsterdam is a city swelling with transportation options such as trains, trams, buses, boats, an underground metro, walking, and bicycling. This research shows that women in Amsterdam are confronted with unwanted attention and violence when navigating the city at night, in the metro, on trams, and while walking. However, the availability and affordability of the bicycle puts women in control of their own mobility; it allows them to move when and where they want and to circumnavigate undesirable situations with self-propelled mobility. The bicycle is a safe, affordable, and liberating means of mobility that has the potential to benefit women worldwide.

¿Dónde están?: Women's Protest to the Pinochet Regime, 1973-1990

Meredith Schnider [Tracey Rizzo], History

Social activism and the woman's role and reaction to it have long been discussions among scholars. Those who challenge the government's ideals, protestors and activists alike, are often tortured, jailed, or simply "disappear" for espousing their opinions. This research aims to assess and treat the historical presence of Augusto Pinochet's, President of Chile 1973-1990, regime and the specific forms of resistance against his government from its female population. By examining the historical aspects of Chilean political grassroots movements, as well as, the rise and fall of the Pinochet regime, conclusions will be made by using primary source documents of journalists, active participants and travelers of the region through this time period, as well as testimonies from the women themselves, to build the argument. The goal of this paper is to better understand the historical impact of women-led grassroots

movements and the affects it can have on shaping the identity of a nation. The sources present an initial glimpse of the affects the regime had on the women. However, this research will go further by comparing the available sources to make an assessment of themes woven through these accounts and the application of it. Congressional hearings and files divulge the role that the American government played in realizing the terrors of the regime and their response, offering a contribution to the conversation, but not a contingent plan of action by the United States. This research will be able to contribute to a growing field on the brutal realities of dictatorship.

Sense and Senselessness in Deconstruction: The Formal Assault on Space in the Works of Le Corbusier, Kisho Kurokawa, and Peter Eisenman

Richard Seguin [Cynthia Canejo], Art History

Deconstructivist architecture seems to be one of the most challenging and experimental practices in contemporary architecture. By implementing Jacques Derrida's methods of Deconstruction, these architects aim to subvert traditional architectural paradigms in order to create a new pluralistic discussion of structural properties and space. This paper proposes that, architecture, at the most fundamental of theoretical formulations, is the active process of defining space through formal operators. With the rise of industrialization, architecture began to manipulate space in ways which fit new methods of Modern living. In contrasting the Modernist works of Le Corbusier with the Deconstructivist space of Kisho Kurokawa and Peter Eisenmans—using this basic definition of Deconstruction and Modernism as a tool for understanding chosen building methods—it becomes clear that Deconstructivist architecture, despite its theoretical aims, is not a revolutionary development but is, rather, a continuation of High-Modernist practices which are self-referential in presentation.

Black Mountain College Museum and Arts Center: Preserving a Legacy

Richard Seguin [Cynthia Canejo], Art History

Black Mountain College was an experimental university establish in the mountains of Western North Carolina in 1933. Although the college was only in operation until 1956, its influence on American art and culture cannot be underestimated. As an intern, I participate in various activities which not only aim to preserve the tradition of the college, but also strive to promote arts in the community. Some of these duties include archival work, gallery preparation, critical research, and event staffing.

Assessment of Browsing of the Federally-Threatened Virginia Spiraea (*Spiraea virginiana*) by Beaver along the Cheoah River, North Carolina

Kathryn R. Selm, [H. David Clarke, Jennifer Rhode-Ward, Jonathan L. Horton, C. Reed Rossell], Environmental Studies

Virginia spiraea (*Spiraea virginiana*) is a federally-threatened shrub endemic to the southern Appalachians. Observations along the Cheoah River, where *S. virginiana* occurs, indicate that beaver (*Castor canadensis*) browse *S. virginiana*. However, the effects of browsing on this population are unknown. The objectives of this study were to determine the relative abundance and relative extent of browsing of woody plants along the scour zone of the Cheoah River. Fifty belt transects (25 m long and 2.5 m wide) were randomly located along the center of the scour zone. Within each transect, all basal stems of woody plants \leq 2.5 cm dbh) were counted, identified, and assessed for beaver browsing. *Spiraea virginiana* accounted for 3.5% of the total number of stems and ranked eighth in relative abundance, and accounted for 8.8% of the total stems browsed which was fourth highest among all species. These results suggest that beaver are likely having an impact on this population of *S. virginiana*. However, additional studies are needed to better understand the role beaver browsing plays in the population dynamics of this rare species.

Images of Poverty in Western North Carolina

Ian Shannon [Alan Hantz], Mass Communications

This presentation will explore the theme of poverty as illustrated in media and personal images. It has been said that poverty is something that cannot be measured by bare backs and empty bellies, it is something more devastating and soul crushing than that. Yet the epidemic of homelessness and poverty remains defiant to words and as avoided as the panhandler. Statistics oversimplify layers of causes and perpetuators while sermons and sonnets inspire altruism until the benediction or to the point of a caveat to be dished out at dinner parties. So it is swept away, and the man on the sidewalk in tattered clothes who pleads "Brother, can you spare a dollar," is recognized as *deja vu* and dismissed just as quickly. Images provide a window into the lives of the children, men and women who are less fortunate than most and struggle day to day to survive any way they can. In an instant, images translate something that town meetings, studies and censuses fall short of conveying, the realization of "I get it! I don't get it." Kersone stoves, benumbed hands, shoes that don't fit, and emaciated and dejected faces are omitted from budget briefings. The power of the image is its ability to unapologetically thrust the naked reality to the forefront

of our conscious as it forces us to confront heavy questions of existence.

Examination of Food as a Possible Teratogen

Cassandra Slate [Patrick Foo], Biology

Teratogens are any substance that can cross the placenta and harm a developing fetus. Considering that the majority of human brain growth occurs within the prenatal period and extends into the first 2 to 3 years of life, teratogens that affect the central nervous system are of paramount concern. Typically studied teratogens include nicotine, cocaine, or heavy metals like mercury. Since these substances may produce irreversible harm to a developing child, educational efforts to prevent the introduction of such substances is the usual course of action. In addition, while the fetus is in the womb, proper maternal nutrition is also very important. This project reviews the fundamental importance of pre and perinatal nutrition, and asks the question, given the obesity epidemic in America, can one consider a high fat diet to also qualify as a kind of teratogen?

The Disability Spectrum: Carson McCullers and the Cultural Significance of Difference

Christiane Smith [Katherine Min], Literature and Language

Isolation is a central theme in the work of Carson McCullers. In order to understand what sets certain characters apart, they must be examined in the context of their various cultural "marks." After analyzing three of her novels from the perspectives of both disability studies and queer theory, these marks can be understood as part of a cultural spectrum, demonstrated by her use of light imagery within the narratives. Varying degrees of differences, such as disabilities, gender ambiguity and class relate to the isolation of individuals from their communities. This paper will explore the marks that distinguish these characters from "normal" society, as well as accommodations each must make in an effort to avoid the despair of isolation. Critical attention was focused on the previously unexamined spectrum of difference in order to find a greater understanding of what constitutes community acceptance.

Understanding the Causes and Effects of Psychopathy

William Smolksi [Patrick Foo], Psychology

Psychopathy is a mental disorder characterized by pathological lying, manipulative behavior, lack of remorse and empathy, disregard for social norms, and a parasitic lifestyle. Psychopaths tend to be very destructive to both themselves and those around them. Both genetic and environmental risk factors exist, but the

exact causes of psychopathy, and the interactions between them, are unknown. Some psychopaths grow up in normal homes with no known risk psychopathy risk factors. Violent criminal offenders show a relatively high frequency of psychopathy, and psychopaths are more likely both to earn early parole and to reoffend. Possibly due to the lack of understanding of its origin, psychopaths are considered untreatable by most mental health professionals. Recently, some therapies have been shown to be effective for adolescents, which may help prevent them from becoming psychopaths. This poster will explain and evaluate these therapies.

Les Flâneurs du Mal and the Invisible Muses: a Gender Seesaw in Decaying Paris

Myroslava Sokyra [Cynthia Canejo], Art History and French

A conducted research provides a critical analysis of philosophical urbanism as a history of collective consciousness, and examines urban decadence as a reflexive tool of socially pre-determined gendered spaces in late nineteenth-century French art. Critical analysis is conducted in terms of ideological empowerment of art and recognizes multiple subservient effects it had produced on society. Works of Edgard Degas, Pierre Auguste Renoir, Édouard Manet, and Maria Cassatt are used to configure the relation of urban decay and intellectual decadence at the dawn of the nineteenth century. The opening part of the project introduces major political and economical events pre-configuring the direction of social intercourses and changing ideals of the Baudelarian generation. The second half is consecrated to the formation of the male and female flânerie in Haussmann's Paris, and concentrates on Nietzsche's premise of Apollonian and Dionysian impulses in art and on Jung's myths of the Garden and the Citadel. Niezysche's psychoanalysis of collective consciousness is used to explore the gender traits within the city configurations, having placed masculinity as a propelling component of the dominate city-form (Ideal Cartesian City or the Citadel) and femininity – as a nurturing element of the incongruous city-form (the Garden). A conclusive analysis of gender relations of modern French metropolis and examines the roles of the (fe)male flâneurs in Manet's and Cassatt's works: the comparative studies are conducted in accord with Griselda Pollock' and Elizabeth Willson's Franco-American feminist discourses arguing the (non-)existent status of the female stroller in the patriarchal society of the late 1800's.

Applying the Heuristic That Translates Unknown to Known Estimates for a Time/Cost Tradeoff at a Given Confidence Interval: A PERT CPM Case Study

Christopher J. Sorrells (Pam Freeman-King², Jimin Lee³, Claudel McKenzie¹, Linda Nelms¹, Donna Parsons¹, and Robert Yearout¹), ¹Department of Management and Accountancy, ² Budget Officer for Campus Operations, ³Department of Mathematics, University of North Carolina Asheville, Asheville, North Carolina

Both Program Evaluation Review Technique (PERT) and Critical Path Method (CPM) were developed simultaneously and independently to group together estimated completion times in a network. PERT uses stochastic data whereas CPM uses deterministic data. For fifty years, analysts have used the two interchangeably but a problem arises when PERT data is projected to a given confidence level (such as 95%) of meeting a completion date. This data cannot be translated into a CPM analysis without losing the desired confidence level, which current literature and software does not address. Krumpe et al. (2010) derived a heuristic (equation developed from empirical data) that successfully translates the unknown PERT estimates to CPM in order to conduct a time/cost trade-off analysis at a given confidence level of completing the project as scheduled. This research's purpose is to develop the first case study to implement use of the heuristic. A typical construction project was chosen and the case was developed to reflect realism and accuracy while remaining academically appropriate. All plans and schedules were analyzed, major activities were listed, and less significant activities were assimilated into their major counterparts. All costs for the project come directly from contractual receipts supplied by the construction department in charge of the project. This case's results clearly demonstrate why it is essential to bridge the gap between unknown (probabilistic) and known (deterministic) data using this heuristic. These results of this work will require major adjustments to current literature in the fields of industrial engineering and operations research. With this bridge, future managers, engineers, and professionals will have the capability to conduct time/cost trade-off for a given probability.

"Attractive Morons Abound in the Community:" The Eugenics Board, The Human Betterment League, and State-Sanctioned Sterilization in North Carolina 1929-1977

Anna Spears [Tracey Rizzo], History

Between 1929 and 1977, the state of North Carolina sterilized nearly 8,000 of its citizens using public funds. Under the authority of the Eugenics Board, which functioned as a part of the Department of Public Welfare,

both doctors at mental institutions and social workers were able to petition for the sterilization of those who were perceived to be "feeble-minded." North Carolina's eugenics program continued years later than the programs of other states, partly due to the efforts of the Human Betterment League, a private organization that advocated for the continuation of widespread eugenic practices. Eugenic sterilization in North Carolina was uniquely driven by fear within the upper class that the lower classes, the poor and working class, would eventually outnumber them and take over as the most powerful force in the state. The upper class viewed state-sanctioned sterilization of the lower class, the "feeble-minded," as a solution to the problem of their growing numbers.

Processed Food: Iron and Calcium Content as Determined by Atomic Absorption Spectroscopy

Margaret Spellman [Sally Wasileski], Chemistry

Many foods commonly found in the average diet are processed or non-whole, but tout healthful benefits from food additives. However, the distribution of food additives within the processed foods is unclear. This project seeks to improve existing knowledge of how the processing of foods specifically affects calcium and iron nutrient content and availability. Atomic Absorption Spectroscopy (AAS) will be utilized to determine the iron and calcium content of different foodstuffs using the standard methodologies from the Environmental Protection Agency (EPA). The observed findings will be compared with the acclaimed content of these elements on the package nutrition labels.

Carnival, Fun, Value

Steve Spurgeon [Mark Koven, Robert Tynes], Art

How does a society define and then assign value? Can we utilize the same criteria when evaluating objects, experiences and ideas? Furthermore, what characteristics are utilized in creating a hierarchy between objects, experiences and ideas? The interactive environment that I will create emulates the sights, sounds, and smells of a carnival. The carnival will act as a paradigm, where participants will make choices reflective of their values. The playful aspects of the pieces encourage participants to act as unbiased free agents, uninhibited by the traditional confines of the gallery walls and their day-to-day mentalities. Underlying this environment is the question of what defines "fun" and "play", as they are contrasted here with the idea of work for the sole purpose of entertainment. My methods of construction and material choices allow the participants to remain aware of the work that has gone into building the structures and games. The use of living goldfish as a form of currency as well as entertainment directly calls into question the value of

money and the value of the things we buy with it, versus experiences.

Health Behaviors of Low-income Older Adults in Asheville

Dana Sroka [Dr. Kathie C. Garbe], Health and Wellness

The Aging Well Curriculum is in the pilot stage of development. It is essential to first assess the initial health behaviors of the participants when designing a successful health education curriculum for lower income adults. The 23-question health survey asked participants to respond to various questions related to personal health behaviors. The questions were formulated based on selecting several key health behaviors in the content areas of emotional, physical, nutritional, and social health of older adults. Participants responded to each question with "Never, Sometimes, Most of the time, or Always" to assess the frequency of their particular health behaviors. The survey included demographic information on age, gender, living arrangement and income for each participant, which will provide insight as to any income or gender-based trends in health behaviors both before and after the curriculum is implemented. The initial health survey showed evidence of a lack of proper nutrition and exercise; 62.5% of participants did not consume the same number of calories they expend. In assessing the physical dimension of health, 85.7% of participants were unsatisfied with the current condition of their body. Participants showed positive attitudes toward social behaviors, with 100% of the older adults answering "Most of the Time" in regards to whether they feel they can effectively listen and communicate with others. The survey shows a significant need for future health education curricula, with emphasis on the physical and nutritional dimensions of health. A post-test will analyze behavioral changes that occurred due to completion of this health education curriculum, and provide insight as to the effectiveness of implementing future programs for improved health among low-income older adults.

Magnetic Ordering in BaFe₂As₂

Logan Stagg [John Stevens], Physics

When BaFe₂As₂ is doped with nickel it is known to exhibit superconducting properties at low temperatures. When pure BaFe₂As₂ is cooled it will become magnetically ordered; magnetization is known to destroy superconductivity. Magnetic ordering is the tendency for the magnetic moments of atoms to align through the exchange interaction creating a net magnetic field in a material. Lowering the temperature of a material increases the likelihood that the magnetic moments of atoms will align making the material into a permanent magnet. Magnetic ordering is not a gradual process but generally happens as soon as a critical temperature is

reached. Magnetic ordering in any material is destroyed by adding thermal energy to the system. The destruction of magnetic ordering happens above the Curie temperature which is characteristic of a given material. In our experiments using Mossbauer Spectroscopy, an absence of magnetic ordering has been observed in BaFe₂As₂ at 6K, which is below the reported Curie temperature of 150K. We suggest this is due to the tetragonal lattice which is stable at high temperatures being frozen in a metastable state. This would entail the absence of an orthorhombic lattice, which we believe is the preferred lattice structure for magnetic ordering.

Finding Elements: Understanding Visual Representations through Process

Shellie Stanberry, Megan Chalk [Robert Tynes], Art

In many cultures such as the Buddhist, Hindu, and Japanese the natural world has been broken down into four basic elements. There are many variations of the elements but these cultures focus on Earth, Air, Fire, and Water. How can the complexities of an element be conveyed on a flat stagnate form? To extend a visual representation of the element photographic transfers are used. The photographic transfers also work with the textures of the wood they are transferred on. In combination, these qualities create a rustic feel that translates to the viewer. Oils paint is applied to create fabric, this examines the colors associated with each element. Carving linear designs into the wood not only brings you back to the original state of the transfer but brings across a graphic state that is in contrast to the photo transfer. The artist has chosen painting fabric to reference specific memories that have relations with Appalachian culture. One of these aspects is the way women would lay out fabric for quilting and all the rich colors involved. The patterns in quilting which remind the artist of nature and this led to photographing nature. The combination of the artist's appreciation for the Appalachian culture and the spiritual elements is the basis for her series.

"You Are Here"

Anna Stanley [Mark Koven], Art

I create playful, inviting, interactive bubble machines that are intended to promote smiles, laughter, and a child-like experience. These machines are made of wood, metal, and textiles; and are entirely powered by the visitors of the show through physical engagement. The pieces remain still and silent until visitors play and interact with them, bringing them to life. This aspect of the work is intended to activate participants' bodies and minds, along with the surrounding environment. The repetitive nature of the mechanisms combined with the unpredictable, organic flow of the bubbles is geared to create an exciting but soothing experience. The act of

playing with the machines creates a personal interaction between the visitor and the machine itself.

I am researching bubble solutions that produce the strongest, longest lasting bubbles and creating machines that make different types of bubbles, long tubular bubbles you can stand inside, as well as small bubbles that float in big groups. In my research I intend to create low-tech mechanisms that create this desired inviting and interactive environment.

Unexpected Phase Transitions of Iron Pnictide

Zachary Stoker [John Stevens and Airat Khasanov], Chemistry

BaFe₂As₂ is a material which undergoes several characteristic phase transitions showing paramagnetism, antiferromagnetic ordering, and when doped properly, superconducting state at low temperatures. Iron atoms appear to be key to the properties of this compound, where they are located in a tetrahedral site formed by two adjacent layers of arsenic atoms. The identical environment of each iron atom would lead one to expect all of them to show the same properties in the system. Surprisingly, Moessbauer spectroscopic measurements which are very sensitive to the local electronic properties of ⁵⁷Fe show two distinct, inequivalent states of iron. To elucidate this observation, low temperature measurements were performed around 130 K, which is known to be the curie point (T_c) of the system. We found that only one third of iron atoms participated in the transition to magnetic ordering. The other two thirds remained paramagnetic to the lowest temperatures of 6 K. The magnetic ordering manifests in the drastic change of the original spectrum from a singlet into a sextet. The observed behavior is explained by a model of partial participation of Iron in donating electrons to the conducting band while the remaining iron atoms keep their electrons localized. When the antiferromagnetic order is established in the conducting band, only iron atoms that donated electrons will experience the effect of this magnetic ordering.

Bolsa Família: Location Adjusted Benefits and Their Potential Impact

Alyssa Strazanac [Robert Tatum], Economics

The Brazilian conditional cash transfer program, Bolsa Família, gives monthly benefits to poor families who meet certain income, school and medical appointment attendance requirements. The benefits received by participants are uniform throughout the entire country despite considerable variations in the cost of living amongst regions. This paper intends looks at the effect of the real value of benefits in relation to higher participation of eligible families in areas where the real value of the benefits is higher, ceteris paribus. The difference between the real value of benefits in rural

areas, with supposed lower cost of living, and the real value of benefits in metropolitan areas, with supposed relatively higher costs of living, would provide an incentive for increased rural participation and higher program effectiveness in areas where the real value is higher. The adjusted benefits or real value of the benefits will be calculated for eleven state capitals in three separate indices. These equations employ the use of indices from the cost of the basic basket of goods, the cost of housing and an adjusted cost of living index from "Índice de Custo de Vida Comparativa para as Principais Regiões Metropolitanas Brasileiras: 1981-1999" (Comparative Cost of Living Index for the Principle Brazilian Metropolitan Regions: 1981-1999) an article written in 2000 by Azzoni et al. Not only does the hypothesis examine if incentives matter, a basic economic concept, but it could also have important policy implications for the program.

Developing a Neuroscience Community Outreach Program in WNC

Jesse Tanas, Brandon Booker, Joseph Martin, Taylor Cole [Patrick Foo], Psychology

Educating young students about neuroscience can be difficult, and is extremely rare in elementary and middle schools, especially in Western North Carolina. We have developed a classroom program that informs young students about neuroscience topics in an engaging manner, to generate ongoing interest in the field. Our program educates students on the topics of muscle memory, smell, and attention. This program is also designed to develop our own abilities to teach and present topics, benefit our own learning, and provide us with community outreach skills. We will give a presentation at a junior high school campus that introduces each topic through lecture and demonstration. This symposium talk will summarize our experiences as they relate to Neuroscience in WNC, and within the broader national Society of Neuroscience Brain Awareness program as a whole.

Guavas: Nutritional and Cultural

Cecelia Thomas, Audrey Weinbrecht, Melissa Weller, Camille Wick, and David Wood [Ellen Bailey, David Clarke, and Amy Lanou]

Guavas have many health benefits, including vitamins and fiber, but also have deep cultural history. Guavas are central to many traditional Latin American recipes and are incorporated into certain cultural practices, including medicinal uses. Roots, bark, and the unripe fruits have been used to relieve upset stomachs and toothaches for centuries. Guavas can be prepared many ways, but the most widespread dish in Latin America is guava shells boiled and served with sweet syrup. Raw guava is often classified as a "super food" indicating high

levels of vitamins and minerals in contrast with its low caloric value. Especially rich in vitamin C, A, and dietary fiber, guava is a great addition to a well balanced diet. Guavas are low in saturated fat and very low in cholesterol and sodium. They are also a good source of potassium, copper, and manganese. Unfortunately, a large portion of guava's calories comes from sugars. Botanically, the guava acclimates quickly to any tropical or subtropical region because of its ability to grow in different types of soil and atmospheric conditions. It is attractive to bees because of the large amounts of pollen it produces and its seeds are dispersed by a variety of animals.

Co-orbital dynamics in Early Solar System Formation

Joseph Thomas [Sam Kaplan], Math

The standard model for solar system formation predicts that final formation of planets should be in circular orbits. Recent discoveries suggest otherwise. We consider, rather than abandoning the standard model, considering coorbital dynamics. These are formations where two bodies orbits a central large mass at roughly the same radius. Coorbital interactions seems to account for the diverse range of eccentricities found in exoplanet data. Justifications for why coorbital dynamics might play a role are explored as well.

Music While You Learn: The Effect Listening to Music has on Reading Comprehension and Concentration

Bethany Thompson, Abigail Griffith [Tracy Brown], Psychology

Today, many students listen to music while they study for classes, though current research data presents conflicting views concerning this practice. This study examines the effect listening to music has on reading comprehension and concentration. Participants (college students recruited from psychology classes) were randomly assigned to three different groups: No Music, Classical Music, and Hip-Hop, and listened to music or silence for fifteen minutes. Reading comprehension was then tested with three sample English I comprehension tests from the North Carolina Department of Public Instruction. The three comprehension tests had a total of 22 multiple choice questions. Reading comprehension scores were then compared across the conditions of music and silence. Scores were also compared across the conditions of type of music, Hip-Hop or Classical. Participants also completed a Self-Report so that the results could be further analyzed based on average GPA, gender, race, and typical study habits. Results and implications for recommended study practices are discussed.

A Structural Study of the Superconducting Parent-Compound BaFe₂As₂

Justin Thompson [Amar Nath], Chemistry

The BaFe₂As₂ family of materials has been shown to be superconductive with doping of a small amount of Nickel. The conditions responsible for existence of the superconductive state are at the focus of this study. The tetragonal crystal structure of iron pnictides features Iron atoms occupying tetrahedral crystal sites with attachments to Arsenic atoms. Because of this, identical chemical and electronic states are expected for all Iron atoms. However, two distinct sites are observed in the Mössbauer spectra of studied samples. The peaks, with larger isomer shift and quadrupole splitting, which are characteristic for higher electron density and asymmetrical charge distribution, have not been previously reported. To identify the cause of this unexpected spectral component, careful observation of structural evolution is performed utilizing Mössbauer spectroscopy, scanning electron microscopy, energy dispersive x-ray analysis, and x-ray diffraction. Special attention is paid to the role of impurities, material treatment, and crystallinity effects. Model explanations including phase transformation, defect formation, and metastable states, as well as others, are discussed and explored.

Los Tomatillos Fantásticos

Courtney Trafford, Stephanie Tullos, Brandy Thrasher, Jenny Siegrist, Brittany Steiner, and Laura Stickels [Amy Lanou, David Clarke, and Ellen Bailey]

For those of us that don't use tomatillos on a regular basis, it's about time for an introduction. Tomatillos (*Physalis ixocarpa* or *Physalis philadelphica*) are indigenous to Central America and were domesticated by the Aztecs around 800 B.C. The tomatillo is a small green (sometimes purple) fruit enclosed in a brown, papery husk, similar to an outer shell. It is a member of the Solanaceae family, which also includes tomatoes, potatoes, eggplants and peppers. Tomatillos grow wildly in Mexico and are a major component of Mexican and Guatemalan diets. Tomatillos provide an excellent source of vitamins A and C, and potassium and although there is little to no protein in the tomatillo, it has a high nutrient density. They contain very low amounts of fat, cholesterol and sodium; this is beneficial because an excess of sodium causes our blood to retain more water, increasing blood volume, and making the heart work harder than necessary. Our purpose is to inform and remind local families about this nutritious, versatile plant and to also share some great recipes that highlight its health benefits so they can incorporate this fruit into their daily diets.

Eyedentuhtea

Max Trainque [Mark Koven], Art

My research seeks to define a relationship between the roles of the host and the parasite of social values in regards to creating a personal identity. This host/parasite relationship questions whether or not we are conscious of how we claim individuality in a world of conformity. It is a blend of internal and external relationships, a sense of reacting to the outside world. Basic research into the fundamentals of social host/parasite organisms uncovers concepts like Media, Conflict, Multiplicity, Environment, Venality, Adornment and Partisanship as contributors. I begin my work by observing and questioning my place in this world; wondering why I make the choices that I do. To question one's identity is hardly a new concept, however, using empirical support from sociologists and virologists that have studied this host/parasite relationship, adds an analogous layer of micro versus macro. I sculpt work that attempts to balance many of dichotomous relationships that this world provides; its beauty and terror, its passion and its apathy, its truths and its paradoxes.

Trace Metal Residues near the CTS Superfund Site in Asheville, North Carolina

Georgia Lee Tryon [Jeffery Wilcox], Environmental Studies and Chemistry

The CTS site, located on Mills Gap road, is currently an EPA Superfund site. There have been high levels of trichloroethylene and its derivatives detected in groundwater within a mile radius of the site. An EPA report issued in 1991 reported elevated levels of numerous trace metals in subsurface soils, and another report released in April of 2008 indicated elevated concentrations of arsenic in the subsurface soils. The purpose of this study is to further analyze trace metal concentrations in water and sediments in a neighboring stream. Grab samples were collected and analyzed using Inductively Coupled Plasma Spectroscopy. Sediment samples contained arsenic concentrations as high as 30 mg/kg, and suspended matter contained lead up to 130 mg/kg. All sediment samples were high in iron, manganese, titanium, and zinc, which are common naturally occurring metals. Further investigation will focus on understanding the factors controlling lead speciation and the properties of the suspended matter found in the stream bed.

Investigation of 1,2-FCI Halogen Interchange and Unimolecular Elimination for $CF_3CHFCH_2Cl/CH_2FCHClCF_3^*$, $CH_3CHFCH_2Cl/CH_2FCHClCH_3^*$, and $CH_2FCH_2Cl/CH_2ClCH_2F^*$

Mary Kate Tucker [George Heard], Chemistry

Hydrochlorofluorocarbons (HCFC) exist in air conditioners, aerosol cans, old electronic equipment, and occur as a byproduct of chemical processes. Before HCFCs reach the stratosphere, unimolecular decomposition occurs following oxidation of OH radicals by ultra violet light absorption. Previous studies suggest an unusual reaction pathway exists. Besides basic elimination reactions, a halogen interchange can occur. The HCFCs under investigation are $CF_3CHFCH_2Cl/CH_2FCHClCF_3^*$, $CH_3CHFCH_2Cl/CH_2FCHClCH_3^*$, and $CH_2FCH_2Cl/CH_2ClCH_2F^*$. The focus is to provide evidence for 1,2-FCI interchange. The reaction pathways are studied both computationally and experimentally. CH_2FCH_2Cl is the only HCFC in this study that is investigated experimentally. Photolysis of $(CH_2F)_2CO$ and CD_2ClI produce CH_2F and CD_2Cl radicals. These radicals combine to form chemically activated $CH_2FCD_2Cl^*$. The 1,2-FCI interchange reaction converts CH_2FCD_2Cl into $CH_2ClCD_2F^*$. Following -DF elimination, vinyl chloride is detected by Gas chromatography/ Mass spectrometry (GC/MS). Confirmation of interchange is evident through detection of $CDCl=CH_2$, with $m/z=63$. Using Density Functional Theory (DFT) under the basis sets 6-31g(d',p') and 6-311+g(2d,p), B3PW91 level of theory, the threshold energies for transition state geometries are calculated from the sums of electronic and zero point energies. Competitive threshold energies among the elimination and interchange reaction pathways provide evidence for 1,2-FCI interchange.

A Study and Comparison of Dehydrogenation Steps of Ethylene Glycol and Ethanol Over Rhodium Catalysts

Britt Tyler [Sally Wasileski], Chemistry

Hydrogen gas is an important fuel for fuel cells, which provides efficient zero-emission energy generation. However, current bulk production of hydrogen mainly comes from natural (methane) gas. The aim of the Wasileski research group is to explore the catalytic reaction chemistry of other compounds for use in hydrogen production, especially those from sustainable bio-renewable resources such as carbohydrates. The dehydrogenation steps of ethylene glycol, the simplest carbohydrate, over a rhodium catalyst surface using computational chemistry to determine the efficiency and elucidate a reaction pathway for production of hydrogen

will be presented. The ethylene glycol reaction pathway is investigated by determining the binding energies and reaction energies of different molecules and geometries involved and will be compared to the dehydrogenation steps of ethanol, a molecule already investigated by former Wasileski research group members.

Student Gains in Learning in Response to Botany Lab Module Change: Student Lead Research to Improve Learning

Emmalie van Kuilenburg [J. Rhode Ward, J. L. Horton, H. D. Clarke, and J. McGlenn], Biology

Coupling scientific writing with inquiry based experiments helps students to establish connections between their methodologies and the results they obtained, versus trying only to generate, copy and paraphrase information provided by an instructor. As part of a National Science Foundation Course, Curriculum, and Improvement Grant, the Biology department restructured its Biology 211: Principles of Botany course to incorporate more inquiry based labs. I worked together with both the Biology and Education departments to develop a rubric for assessing students' scientific writing ability, and to write an interest inventory to track student learning, skills and attitudes over the course of the semester. We found 1) a significant improvement in students' scientific writing between the first and final papers, 2) significant changes in student comfort and familiarity with the process of designing and executing an experiment, and 3) no significant change in student attitude or interest in botany. These data will be used to further modify the tools developed for this course. The aim is to continue to improve student learning by continuing to modify the research component of this course and measure this change in learning over time through the questionnaires and writing rubric.

Surveying the Effectiveness of Supplemental Instruction in General and Organic Chemistry Courses

Arielle Vertuoso [Jason Schmeltzer], Chemistry

Supplemental Instruction (SI) is a nationally-recognized, non-remedial education support program founded at the University of Missouri-Kansas City during the early 1970's. The SI model has been adapted to support collegiate courses in a variety of disciplines including history, biology, mathematics, and professional medicine. SI has been traditionally implemented for "high-risk" courses in which 30% or more of the enrolled students withdraw or earn final grades below a C. Historically, general and organic chemistry are examples of such "high-risk" courses. Because SI couples learning skills together with the course material to be learned, it may help students better learn and retain course knowledge. Furthermore, previous research has shown

SI to promote diversity by providing minorities with greater academic support and increasing timely graduation by 11%. In the spring of 2011, SI was implemented into sections of General Chemistry (CHEM 132) and Organic Chemistry I (CHEM 231). A survey of the SI effectiveness was distributed to enrolled students with the purpose of understanding how this support strategy affects personal attitudes and self-assessment of course skills and knowledge. The goal of this study is to evaluate and understand how SI affects personal attitudes and mastery of course knowledge and skills.

Quantitative Proprioception Assessment across the Lifespan

Serena Vonkchalee and Catherine Welder [Jason Wingert, PhD, PT, and Patrick Foo, PhD], Health and Wellness and Neuroscience

Falls are the leading cause of hip fractures and injury-related hospitalization among older adults. Proprioception, the body's sense of how it is positioned or moving in space is an integral part of overall postural stability. Previous studies have suggested that proprioception declines with age, but these studies are equivocal. The purpose of this research was to quantitatively assess proprioception across the lifespan.

In an on-going study, forty-two adults (20 young, mean age: 20 years; 16 mid-aged, mean age: 52 years; 6 older, mean age: 74 years) were recruited from the UNC-Asheville community. Hip joint proprioception was measured in the transverse plane; joint position sense (JPS) was determined using the magnitude of error between performance and target location for each trial to the nearest degree. Kinesthesia was measured by accurately detecting random internal or external passive rotation of the hip joint. Although there was a significant increase in proprioception errors in older versus young adults (JPS, $p=0.0053$; kinesthesia, $p=0.0076$), activity level may prove to be a protective factor.

Microhabitat of the Federally Threatened *Spiraea virginiana* along the Cheoah River in North Carolina

Margot Wallston [C. Reed Russell], Environmental Studies

This study characterized the habitat attributes of the federally threatened *Spiraea virginiana* (Rosaceae) growing along the Cheoah River in Graham County, North Carolina, and compared attributes to determine their relative importance. Thirty-three 3-m-diameter circular plots were established around all known *S. virginiana* subpopulations and paired with 33 randomly located plots where the plant was absent. Habitat data, including percent herbaceous cover, tree and shrub density, slope, aspect, light, and percent type of substrate, were collected from all plots. Substrate type was the only variable measured that differed between

plots with and without *S. virginiana*. Plots with *S. virginiana* had a higher percentage of boulders than plots where *S. virginiana* was absent ($P = 0.02$). All other variables did not differ ($P > 0.15$). The habitat of *S. virginiana* along the Cheoah River can be characterized as relatively harsh, with moderate light levels due to a partially closed canopy, and steep, south-facing stream banks, with rocky substrates and little exposed soil. These results suggest that *S. virginiana* is a habitat specialist, requiring an early-successional stage environment with regular disturbances for this species to flourish and compete with neighboring vegetation.

Establishment of Biological Control Predators of the Hemlock Woolly Adelgid on Trees Previously Treated With Systemic Insecticide

Robert Weaver [Dr. Kitti Reynolds and Dr. Bud Mayfield], Environmental Studies

The hemlock woolly adelgid (HWA, *Adelges tsugae*) is a true bug that poses a widespread threat to eastern (*Tsuga canadensis*) and Carolina (*T. caroliniana*) hemlocks. This non-native insect feeds on the needles and multiplies exponentially, causing significant hemlock mortalities. The range of this pest extends along the Appalachian mountain range from Georgia to Maine. With over half of hemlocks affected by HWA it is vital to reduce these impacts to maintain healthy ecosystems and to protect the rare Carolina Hemlock. The current practice to combat the destruction of the hemlocks consists of using systemic insecticide (imidicloprid) via soil injection. Although the insecticide can provide multiple years of defense against HWA, its use alone is impractical and threatens ecosystem health. Biological control strategies using insects with similar life histories (particularly the beetle *Laricobius nigrinus*) provide the most sustainable management strategy; however, the success of previous predator establishment was inconclusive. In this study, an amalgamation of the two strategies was used with three objectives: (1) to evaluate the establishment success of the predator beetle *L. Nigrinus* on trees previously treated with low rates of imidicloprid (2) to compare the health of predators feeding on treated trees with those feeding on untreated trees and (3) to compare the overall impact of predator and chemical treatments on tree health of treated and untreated trees.

The Priest who Opposed the "Creatures:" Father Terence Caraher, Prostitution, Progressivism and the Nymphia in Turn-of-the-Century San Francisco

Virginia Wells-Layne [Ellen Pearson], History

The Progressive Movement has been seen as a response to the urbanization and the industrialization of the American landscape, and with regard to the anti-

prostitution movement, the changing role of women in American society. Father Terence Caraher was an exemplar of the Progressive Movement, whose followers aggressively pursued reform by attempting to force the state to take a more active role in regulating the social welfare and the moral actions of citizens. Caraher was a priest at the parish of Saint Francis of Assisi in San Francisco at the end of the nineteenth and the beginning of the twentieth century. Concerned with the degraded morals of some residents, he fought to bring together his community of North Beach and to force the government to uphold its laws in order to crush the ever growing and unrestrained red-light district, the Barbary Coast. Particularly, Father Caraher focused on the destruction of the Nymphia, one of the largest brothels in the city. Primary sources from San Francisco archives and newspapers from the era demonstrate that Father Caraher's actions heavily influenced North Beach residents and the city government, and drastically shifted ethics in San Francisco.

In Between Worlds

Amelia Welsh [Heidi Kelley], Anthropology

The purpose of this project is to explore how first and second-generation Filipino and Latino youth contend with their liminal status (e.g., in-between the world of their parents and peers) in the context of activities at St. Lawrence Catholic church in Asheville. Participants will be observed in a Youth Group setting. This project will explore their personal identity as well as attempt to understand what it means to be a first/second generation Filipino and Latino youth in Western North Carolina. There are no formal interviews in this study, only a search for the point of view of the students in the form of personal experiences and/or stories through ethnographic research.

Greed: Its Variable Implications in a Study of the Ultimatum Game

Andrew Wertheim [Chris Bell], Economics

The division of an allotment of money between two individuals coincides neither with predictions from the Nash game theory model of equilibrium nor with classic behavioral economic predictions. We propose that effects of certain psychological variables (more specifically greed) are a contributing factor for this offset. Through a modified version of the classic Ultimatum Game, we quantify the effects of greed on high school students' financial choices. The results of the study shed light on the discrepancy between predicted and empirical results.

Transmission of Monetary Policy to Equity Markets

Brittany Wheeler [Robert Tatum], Economics

This event study analyzes the effects of monetary policy on the S&P 500 index. I will observe the market's reaction to monetary policy announcements originating from meetings of the Federal Open Market Committee from 2003 to 2010. The efficient markets hypothesis suggests only the unexpected component of monetary policy will elicit a market response after FOMC meetings. I will identify these monetary policy surprises using a Bloomberg survey conducted a few days before the FOMC meeting and subtract the actual monetary policy decision from the expectation to estimate the effect of the policy change on the movement of the S&P 500 index. I will also use a dummy variable to determine if changes in this effect can be detected since the crisis of 2008.

Story Starters

Mary Alice White [Robert Tynes, Tamie Beldue], Art

Juxtaposition of images in art can convey endless possibility for a story, without the use of words. In this series of large scale oil paintings, these story starters provide a snippet for the viewer to create their own dialogue. Reality and the imagined are purposefully juxtaposed to illicit wonder from the viewer. Encounters between humans and irregularly small animals create a conversation that forms an open narrative. By opening the narrative up the viewer becomes an active mind in the story of the painting. Through research of other artists working within a surrealistic context, techniques are exemplified in this body of work to create a theatrical experience.

Asheville Art Museum Internship

Valerie Whitmire [Leisa Rundquist], Art

The presentation involving my internship at the Asheville Art Museum in downtown Asheville will include specific details of what I did at the museum during my time there. I plan to discuss my involvement with the museum from setting up some of the current exhibitions, organizing old scrapbooks, researching funds and additional information for upcoming exhibitions, and even painting some of the galleries. I will also include details from my overall time spent doing whatever was needed by the museum and its staff in order to be well prepared for the days ahead. I will elaborate on what I worked on and with whom at the museum gave me these opportunities, as well as how I came to even get a job there. My experience at the museum has been nothing short of amazing, and I want to share every single fantastic experience it has given me. I will share my hopeful future

plans of staying at the museum, and continuing in this fascinating field of work.

Sexual Fetishism: the Extension of Sexual Pleasure

Rachel Wilder [Patrick Foo], Psychology

Sexual Fetishism is a taboo subject in the US, and often thought of as a reprehensible sexual behavior. Sexual fetishism is when a person is sexually aroused by an inanimate object over a period of six months, which impairs the person's social and occupational life. However, in the biology of the mind, sexual fetishism can be related to classical conditioning that may be out of an individual's control. The pairing of inanimate objects and female quail resulted in male Japanese quails becoming sexually conditioned to exhibit sexual arousal even when the inanimate object was presented alone. Conditioning also resulted in decreased copulatory behavior with actual females, suggesting that fetishism is negative for the species as a whole. However, a majority of humans have sex for pleasure instead of reproduction. Sexual fetishism may be an evolutionary disorder to obtain sexual pleasure more easily.

Examining the Interaction of Color and the Monetary Incentive Delay Task on Measures of Physical Arousal and Attractiveness Ratings

Catherine Williams and JJ Morrow [Michael Neelon], Psychology

Recent studies (Elliot & Niesta, 2008; Elliot et al., 2010) have shown that the color red surrounding a photograph of a woman increases men's reported sexual attraction to her. Though poorly understood, one possible explanation posits involvement of dopaminergic (DA) activity in the reward systems linked to the nucleus accumbens (NA). By selectively activating the NA, this experiment seeks to measure its effects on subsequent attractiveness ratings. A Monetary Incentive Delay (MID) task has been shown to selectively activate the NA, particularly during periods of anticipation of reward (Knutson et al., 2000; Knutson et al., 2001). In the present experiment, psychophysiological measures (e.g., skin conductance) were recorded while subjects engaged in an MID task in which they responded to a flash of light following one of four reward-based cues. Participants were also intermittently asked to rate the attractiveness of one of four black and white images of a woman set on either a red or blue background. Both mean attractiveness ratings and psychophysiological measures will be analyzed to determine if there are selective increases in both the red effect and emotional reactions after high-reward cues, suggesting a role of the DA system in the red effect.

Encoding of the Lesbian Relationship from Novel to Film Adaption

Rebecca Williams [Lorena Russell], Honors Special Topics: Queer Films

From Flagg's novel *Fried Green Tomatoes at the Whistle Stop Café* to Jon Avnet's film adaption, the lesbian relationship of the two protagonists, Idgie and Ruth, is encoded. For the purpose of appealing to a mainstream audience, the film adaptation masks a devoted and powerful romantic relationship between two women as profound friendship. Through her own insecurities of her sexual orientation, the novel's author somewhat ambiguously reveals the truth of the relationship between the two women through their personal thoughts and asides rather than through their concrete actions between one another. However Jon Avnet's adaption is more obscure; weary of accurately portraying a lesbian relationship on film as a debut director, he creates a supportive and profound friendship between the two protagonists in a manner that attracts a broad audience and is fiscally successful. The film seems to take vague lesbian relationship between Idgie and Ruth one step further. Screenwriters, producers, and directors transform lesbian desires into friendships that are presumably more acceptable to the public. By substituting romantic love for near-platonic love, film adaptations of their respective novels misrepresent the lesbian culture.

Alice Neel and the Liberation of the Pregnant Form

Tabitha Williams [Leisa Rundquist], Art

This paper will provide the audience with an introduction to the life and work of American artist Alice Neel (1900-1984). Specifically, the paper will focus on the series of female pregnant nudes Neel painted from 1964-1978. The paper will address the social relevance of Neel's choice to focus on a subject previously lacking in representation. Furthermore, the paper examines how Neel creates characters in her portraits by displaying their inherent psychology. Through the process of portraiture, Neel allows her subjects to either transcend or relish in their pregnant form by creating personalities that avoid objectification. Parallels will be drawn between the work of Neel and that of the artist Judy Chicago (1939-), referencing her works *The Dinner Party* (1974-1979) and *Birth Project* (1980-1985), and concentrating on comparisons between aspects of feminism present in the work of the two artists and art criticism of the time.

The Power and Price of Making: Art, Magic, and the Machine in Tolkien's Legendarium

Robert Willis [Merritt Moseley], Literature

The act of Creation, as well as the ability to make real things within the created world, is definitively located with a supremely good Divine Being in J. R. R. Tolkien's mythology. Yet the conflict in his stories revolves around artifacts of power, particularly the Silmarils and the Rings of Power, whose makers are corrupted or deceived. How does an originally divine urge to sub-create within the world become corrupted, so that good intentions bear evil fruit? A careful reading not only of Tolkien's many stories but of his numerous and detailed letters reveals that Tolkien's treatment of this problem of evil is rooted in an unusual conception of a fallen world. This research will reveal the ways in which Tolkien's personal Christian faith influences his conception of making within Arda Marred, but does not ultimately control it, producing a unique but fully realized ethical mythos.

Assessing the Effectiveness of Peer Education on Understanding of Differences Between Sex, Gender and Sexuality

Natalia Wiszczur, Melody Rood [Karin Peterson], Interdisciplinary Studies

This research project examines the effectiveness of a student-facilitated workshop on sex, gender, and sexuality in an academic setting. Natalia and Melody have created a lesson plan that explains the differences between sex, gender, and sexuality while focusing conversation on social constructions and binaries. Through the use of an anonymous feedback instrument, this presentation will demonstrate the importance of this specific type of lesson for students' personal growth as well as the promotion of a more gender diverse campus environment that provides a safer space for students with non-conforming gender identity. The project will also incorporate a sample lesson plan for staff to adopt into future courses. In conclusion, this presentation will demonstrate the effectiveness of peer education in a classroom setting.

Trichloroethene (TCE) in surface water near the CTS site in south Asheville

Michael Wuttke [Jeffery Wilcox], Environmental Science

The CTS site, located off of Mills Gap Road in South Asheville, is the site of a former electroplating facility that used the chemical trichloroethene (TCE) as a

degreasing agent from 1956 until 1986. The site is currently listed as a superfund site but is still undergoing evaluation for the National Priorities List (NPL). TCE has been detected in local soils, groundwater, and surface waters well above the drinking water standard of 5 parts per billion (ppb). This project is being conducted to examine how TCE concentrations downstream of the site vary as a function of seasonal, meteorological, and hydrological factors. Surface water samples collected near a spring outside of the CTS property recorded TCE concentrations ranging from 1,004 ppb to 1340 ppb and cis 1,2 DCE ranging from 95 ppb to 134 ppb using gas chromatography-mass spectrometry (GC-MS). This indicates a consistent source of TCE feeding the streams.

Creative Invention at Phil Mechanic Studios

Meredith Zandi [Cynthia Canejo], Art

This presentation will cover what I have experience and learned from interning at Phil Mechanic Studios in the River Arts District this semester. So far, there have been two exhibitions in the Flood Gallery. The work of Claire Elizabeth Barratt, director of Cilla Vee Life Arts, presented "Dance is the New Visual Art" through the month of January. Her show was made-up of video and sound installation. She incorporated sculptural forms created out of paper, fabric, and wire to project her images onto or surround a space for the viewer to look into. Her graceful, unpredictable design of video, experimental dance, and sculpture create a unique and intriguing environment. Sound installation is also incorporated into her work by acousmatic composer, Dr. Rick Nance. The compositions of Alan Leper Hampton are on display now in the Flood Gallery and his opening exhibit, "Silver Walls, Golden Pillars, Diamond Doors," will be taking place April 2nd. His show consists of a dynamic variety of work, including mixed media installations, two large-scale murals, and hand drawings in blood. Opening the same day, will be a collaboration of work completed by some of Asheville's local photographers in the upstairs gallery. It has been inspiring to be in the presence of innovative artworks such as these and work alongside other artists in the Phil Mechanic Studio. My presentation will also include photos of artists' work whom I have had the advantage to work within their studios, along with photographs I have taken during my time spent there.

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David Clarke
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Ellen Bailey
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