Whitman Undergraduate Conference

April 10, 2012

WHITMAN COLLEGE

undergraduate conference

April 10, 2012

Each year the Whitman Undergraduate Conference celebrates the scholarship and creativity of Whitman students through a day devoted entirely to their accomplishments.

The 14th Annual Whitman Undergraduate Conference brings together students from every academic area of the college to share their research and creative projects with the campus community.

The conference is noteworthy for its variety of presentations, which take the form of talks, poster presentations, musical performances and artistic exhibitions.

The projects in this program attest to the original work that our students have produced in their courses, senior theses, summer internships, and study abroad.

schedule

April 10, 2012

Breakfast: 8:15 a.m.
The only breakfast served on campus will be a continental breakfast in Olin Hall foyer, the Hall of Science Atrium and Reid Campus Center.

Session I: 9-10:15 a.m.

Coffee break: 10:15-10:45 a.m.
In Olin Hall foyer, the Hall of Science atrium and Reid Campus Center

Session II: 10:45 a.m.-noon

All-Campus Lunch: Noon-1 p.m.
Reid Campus Center

Senior Art Exhibition/Presentation: 1-2 p.m.
Fouts Center for Visual Arts Exhibition Space

Poster Session: 1-2 p.m.
Cordiner Hall Foyer

Session III: 2-3:15 p.m.

Afternoon intermission: 3:15-3:45 p.m.
Reid Campus Center

Session IV: 3:45-5 p.m.

musical performances

Morning Intermission
10:15-10:45 a.m.
Hall of Science Atrium

Flute Quartet
Jessica Shatkin, flute
Ryan Jacobsen, violin
Katri Gilbert, viola
Robin Miller, cello

String Quartet
Rebecca Young, violin
Spencer May, violin
Aleida Fernandez, violin
Carrie Sloane, cello

Lunch
Noon-1 p.m.
Reid Campus Center

Jazz Ensemble
Doug Scarborough, director

Saxophones
Sam Epstein, alto
Machado Mijiga, alto
Peter Qualtere-Burcher, tenor
Sebastian Jay, tenor
Meg Vermillion, baritone

Trombones
Mark Arand
Gus Friedman
Clayton Collins
Tommy Gibson, bass

Guitar
Eric Werner
Nick Shariat

Trumpets
Owen Lowry
Max Reikowsky
Nick Pellatz
Brett Leroux
Pablo Rivarola

Piano
Jonas Myers
Dylan Martin
Ethan Maier

Bass
Nathan Radakovich

Drums
Robby Seager

Afternoon Intermission
3:15-3:45 p.m.
Reid Campus Center

Jazz Workshop
Josh Augustin, piano
Max Bates, alto
Sam Epstein, alto
Maggie Hickman, piano, vocals
Ethan Maier, piano
Jason Morrison, piano, vocals
Brett Porter, tenor
Pablo Rivarola, trumpet
Meg Vermillion, baritone sax

inside
Scenes from the 2011
Whitman Undergraduate Conference

All photos by Greg Lehman

panel schedule

	Olin Hall 130	Olin Hall 157	Reid, Ballroom B	Science 100 Brattain Auditorium
Session 1	**Women's Identity**	**Literary Inquiry**	**Encounters**	**The Physical Universe**
9 a.m.	Erika Horwege	Andrew Ryan	Yonah Biers-Ariel	Bryant Fong
9:15 a.m.	Nanyonjo Mukungu	Cara Lowry	Benjamin Roberson	Alexe Helmke
9:30 a.m.	Mehera Nori	Madeline Jacobson	Samuel Chapman	Samuel Schonfeld
9:45 a.m.	Lyndsey Wilson*	Aaron Aguilar Ramirez*	Sabrina Wise*	Zach Schierl*
10 a.m.				
Session 2	**Hip (-Hop) Culture**	**Canadian Literary Plurality**	**Youth Culture**	**Earth History**
10:45 a.m.	Heather Smith	Nick Michal	Hannah Moskat, Katelyn Sorenson	Matthew Hanson
11 a.m.	Amanda Arriola	Alex Pearson	Jeremy Norden	Matthew Morriss
11:15 a.m.	Julian Helmer	Alyssa Whitt	Kelsie Baher	Emily Johnson
11:30 a.m.	Shane Young	Patricia Vanderbilt*	Mackenzie Gerringer*	Will Bender
11:45 a.m.	Sam Alden*			Kate Elkind, Matthew Hanson*

Noon-1 p.m. ☞ All-campus lunch in Reid Campus Center

1-2 p.m. ☞ Poster Session in Cordiner Hall

Session 3	**blue moon/quarterlife**	**Thought, Word and Creed**	**Doors of Perception**	**Environmental Science**
2 p.m.	Michaela Gianotti, Jonas Myers, William Whitwer, Simi Singh, Sabrina Wise, Peter Qualtere-Burcher, Zoe Ballering, Nick Michal, Evelina Miropolsky, Molly Esteve*	Merrett Krahn	Michael Barker, Mark Arand, Theodore Pratt	Kelee Peyton
2:15 p.m.		Allison Bolgiano	Shanglun Wang	Kaitlin Cloud
2:30 p.m.		Elizabeth Hambleton	Peter Osseward, Whitney Griggs	Shannon Buckham
2:45 p.m.		Jordan Brown	Surabhi Veenapani, Alyssa Nevell, Julianne Linn	Mackenzie Gerringer*
3 p.m.		Elizabeth Daviess*	Michael Schier*	
Session 4	**Walla Walla Intersections**	**"Hiroshima mon amour": Three Views**	**Bias and Social Response**	**Archaeological Finds: From Pottery Neolithic to Masada**
3:45 p.m.	Meghan Bill	Anne Gaskins	Noah Henry-Darwish, Courtney Sanford	Janaki Phillips
4 p.m.	Adriel Borshansky	Erin Drake	Kendra Klag	Alyssa Bader
4:15 p.m.	Margaret Allen	Kari Paustian*	Mary Allain	Ian Kretzler
4:30 p.m.	Jan Hudson*		Kate Kunkel-Patterson*	Emily Hanscam*
4:45 p.m.				

**Denotes moderator*

Science 151	Science 165 Gaiser Auditorium	Kimball Theatre	Reid G02	Sherwood 222
Chemistry Matters	**Environmental Impacts and Politics**	**Arab Springs and Other Revolutions**	**Food for Thought**	**Children and Poverty**
Ruben Raychaudhuri	Emily Doyle	Benjamin Menzies	Suzanne Jaszczult	Stacey Rosenzweig
Yon Choi	Rachel Alexander	Kelley Hall	Marcial Díaz Mejía	Helen Jenne, Nick Tacke, Lillian Bailey, Sarah Stanger
Alec White	Hayley Mauck	Mitchell Dunn	Kyla Flaten	Peter Olson, Lauren Hopson
Kira Peterson	Shelly Le, Sean McNulty, Monica Simmons, Julia Stone*	Dhavan Vengadasalam	Sarah Wolf, Lydia Lund	Autumn Knutson, Lindsay Olson, Evelina Miropolsky*
Mitchell Lee*		Molly Johnson*	Molly Hayes, Sophie Davis, Lindsay Cameron, Hannah Joseph*	
Hard Science	**Ecological Concerns**	**Service Trips**	**Gender, Cruelty and Incarceration**	**Modern Political Economies**
Nathan Neff-Mallon	Olivia Molden	Ali Murray	Elizabeth Reetz	Sebastian Jay
Christa Heavey	Kyle Moen	Meghan Browne	Amanda Lane	Alexander Brott
Nathan Abrams	Katie Tackman	Andrew Patel	Grace Davis	Lauren McCullough
Kayla Hegedus*	Khoa Nguyen	Rose Haag	Nina Neff-Mallon*	Charlie Weems
	Maggie Massey*	Beverly Li*		John-Henry Heckendorn*

1-2 p.m. ☞ Senior Art Trip Presentation in Fouts Center for Visual Arts

Sam Alden, Sarah Canepa, Kelly Douglas, Binta Loos-Diallo, Hayley Mauck, Megan Oost, Julia Schneider, Amanda Villaseñor, Elizabeth Wolff

Disease Studies	State of the State I	Media and Message	Gender Studies	Boundaries and Borders
Sam Sadeghi	Spencer May, Daniel Merritt, Madelyn Peterson, Christine Kiely, Lauren McCullough, Seth Dawson*	Noah Lerner	John Abercrombie	Elana Congress
William Harbour		Emma Snyder	Christina Tamaru	Michael Hanley
Sophia Davis		Catherine DeCramer	Ryan Creal	Hannah Johnson
Natalie Tamburello*		Alethea Buchal	Jack MacNichol	Margaret du Bray*
		Paige Joki*	Hari Raghavan*	
East Meets West: War, Crime and Politics	**State of the State II**	**Great Performances**	**Immigration, Bias and Justice**	
Benjamin Menzies	Katie DeCramer, Andrew Ryan, Simi Singh, Charlie Weems, Mary Allain, Julia Stone, Adam Delgado, Cynthia Ramos, Hannah Holloran*	Mark Arand	Omar Ihmoda	
Maia Singhal		Elizabeth Fleming	Kayla Foster	
A. Gabrielle Westcott		Jordan Brown	Alice Minor	
Sara Rasmussen*		Peter Qualtere-Burcher	Ahmed El Kottby	
		Erik Feldman*	Daria Reaven*	

posters *(Lead presenters)*

Ana Aguilar | Weighing the Issue: When Is It Okay to Express Positive Attitudes About One's Body?

Lillian Bailey | The Effects of Socioeconomic Status on Infant Tool Use

Allison Beemer | Minimizing the Entropy of Z^2 Actions on Toral Automorphisms

Madeleine Coleman | Visualization of the Tripartite Synapse

Laura Coulson | Boron Clusters: Dimerization of the $CB_{11}H_{12}$ Anion

Margaret Du Bray | Site Fidelity among Grey Whales (Eschrichtius robustus) as Determined by Photographic Identification in Bahia Magdalena, Baja California Sur, Mexico

Nina Estep | Infralabial Outlets Involved in Communication and Rubbing Behaviors of Psammophis Snakes

Taylor Folt | Biofilm Inhibition and Antibiotic Resistance of Pseudomonas aeruginosa

Krista Garrett | Understanding Nutrient Fluxes in a Restored Salt Pond

Whitney Griggs | Kinematics of Natural-Environment Coordinated Eye-Head Movements in Humans During Large-Amplitude, Visually Guided and Memory Tasks

Mzuri Handlin | Desorption Kinetics for Chlorinated Organic Pollutants in Systems Containing Both Contaminated and Uncontaminated Sediment

Dandi Huang | Survey of Australian Lungfish Genome

Jack Lazar | The Contributions of SOS Health Services to Marginalized Residents of the Walla Walla Valley

Ngoc Linh Le | Mitochondria Density Within Purkinje Cells: Contribution to Variability Seen in Fetal Alcohol Syndrome

Hannah Lewis | Insulin Signaling in the Ketogenic Diet: A Potential Mechanism of Seizure Prevention

McKenzie Momany | The Role of Macrophages and Interleukin-33 in Pulmonary Inflammatory Responses

Nina Neff-Mallon | Lockean Poetics

Katie Miller | Reasoning About Other People's Beliefs: A Comparison Between Monolinguals, Early-Onset Bilinguals, and Late-Onset Bilinguals

Nathan Ord | Analyzing Host-Specific Antibodies in Female to Male Bone Marrow Transplant Patients

Emma Oschrin | Bluebunch Wheatgrass Success on North- and South-Facing Slopes

Stephen Over | Effects of Physical Environment on Brain Cell Development

Donna Phan | An Investigation of Novel Cyanation Methods on 1-carba-closo-dodecaborate^{1-} Anion Cages

Katie Radosevic | The Effects of Local Flower Loss on Specialized Pollen Foragers

Angela Raso | Determining the Presence of Dense Non-Aqueous Phase Liquids in River Sediments

Aaron Rosenbaum | Halogenated Carboranes: Synthetic Steps to Dendritic Boron Molecules

Elizabeth Schiller | Refining Meyer's Minority Stress Theory: Does Personality Play a Role in Predicting Mental Health Outcomes for LGB Individuals?

Samuel Schonfeld | Observations of the Neupert Effect with SDO, RHESSI and GOES

Thomas Siegert | Thermal Contraction as a Metric for the Efficacy of Inert Oils as External Cryoprotecants in Protein Crystallography

Ryan Smith | The Role of Sodium Chloride Transport in Kidneys and Blood Pressure

Stephanie Steiner | Design of Potential Anti-Cancer Drugs

Jordan Thomas | Carbon Cycling at the Top of the World: A Global Warming Study

Bradley West | Multiple Causes of Wooly Mammoth Extinction Based on Stable Isotopes of Tusks

Stefan Wheat | How Do Tadpoles Use Chemical Cues to Assess Risk? Cue Concentration Versus Pulse Frequency


WHITMAN COLLEGE

session 1
9-10:15 a.m.

Women's Identity
Olin Hall 130
Lyndsey Wilson, moderator

Erika Horwege | Sex and Seclusion: The Ideal and Reality of Women in Ancient Greece, 9 a.m.

When considering ancient Greek plays and epics along with mythology, a portrait emerges of the ideal woman as secluded and domestic. Xenophon's "Oeconomicus" reinforces this male-created ideal, representing women as wives, mothers, and daughters living within the male household. Adhering to this ideal allowed women to gain social respectability, but some expanded their role to participate in the public sphere while keeping within culturally acceptable boundaries. Most notably, women gained social praise and power through religious roles and offerings even though these roles compromised the ideal of seclusion and domesticity. In contrast, Spartan women were supported by a city that upheld an ideal that encouraged female agency in civic life. In general, ancient Greek women upheld the ideal of domestic seclusion to gain social power at the same time that they made their way into public life. Faculty Sponsor: Jacqueline Woodfork

Nanyonjo Mukungu | Transnational Black Feminist Solidarity Through a Critique of the Global Justice Movement, 9:15 a.m.

The global justice movement demands the democratization of international economic institutions and participatory democracy. Although these developments would benefit diverse groups of people, internal inequalities in the movement (reflected in the lack of inclusion of black women from both the United States and Africa) have prevented them. Transnational black feminism can build solidarity by challenging and changing dominant power relations within the global justice movement. Using the theory of differential consciousness formulated in Cheval Sandoval's "Methodology of the Oppressed," my presentation deconstructs the global justice movement by highlighting how the movement has failed to include black feminists and African womanists in the conversation about its goals. I also explain why these women need to be included in the conversation. Finally, I suggest how black feminists and African womanists can align using U.S. third-world feminism. Faculty Sponsor: Shampa Biswas

Mehera Nori | Reproductive Rights, Gender Inequality, and Female Identity in Modern China, 9:30 a.m.

Thirty years ago, the Chinese government implemented one of the most contentious policies in the history of global reproductive rights: the One-Child Policy. Framed to address environmental and economic concerns, the policy consequently affected societal views of gender by restricting couples to only one child in a culture where sons are valued more than daughters. The devaluation of women relative to the steadily rising population has widened the gender gap in China. Officials speculate that by 2020 there will be approximately 30 million more men than women in China. My presentation examines the methods by which Chinese women circumvent reproductive policies and explores the relationship between these actions and cultural perceptions of gender. Through an analysis of sex-selective abortion, female infanticide, and other methods, I argue that by defying reproductive policies Chinese women only perpetuate their own gender discrimination. Faculty Sponsor: Shampa Biswas

Lyndsey Wilson | Race and the Experience of Commercial Sex Workers: Recommendations for Policies to End Sexual Exploitation, 9:45 a.m.

Considering the body of scholarship focused on the dynamics of the commercial sex industry, extant academic projects do not comprehensively examine the role of race and ethnicity in the experience of women involved in com-

mercial sex. My presentation aims to expand upon grounded, qualitative research-based knowledge by investigating the role that race and ethnic identification may play in a woman's experience in the sex industry, with a focus on the Pacific Northwest. How does minority identification affect the likelihood of a woman's entry into the sex industry, whether coerced or voluntary? Furthermore, I seek to ascertain whether her experience with commercial sex is affected, positively or negatively, by her racial or ethnic identification. Lastly, once she decides to leave the sex industry, how do resources and rehabilitative services address her experience as a minority? Faculty Sponsor: Suzanne Morrissey

Literary Inquiries

Olin Hall 157

Aaron Aguilar Ramirez, Moderator

Andrew Ryan | Tales Re-Told: Transformations in the Icelandic Sagas, 9 a.m.

The Icelandic Sagas, which began as oral stories in the late 10th century, took physical form as manuscripts in the 12th and 13th centuries. In my presentation, I will explore the inherent differences between the oral Sagas and their written counterparts. While the oral tradition of the Sagas likely still thrived during the period of their transcription, written manuscripts became "original" sources to which all Saga-tellers referred and eventually all versions were compared. Prior to being written down, the Sagas possessed a quality of atemporality maintained in communal exchange and memory. I argue that the preservation of the Sagas in physical, unalterable manuscript form fundamentally changed Icelandic perception of the stories giving them a definite origin. Faculty Sponsor: Roberta Davidson

Cara Lowry | A Magnetic Marriage: Beaumarchais, Mesmer, and the Circulation of Ideas in Prerevolutionary France, 9:15 a.m.

In my presentation, I will examine the juxtaposition of two seemingly unrelated sensations: the record-breaking theatrical run of Beaumarchais' "Folle Journée, ou le Mariage de Figaro" and the unbridled enthusiasm surrounding Mesmer's theory of animal magnetism. During the decade before the French Revolution, each phenomenon became a major topic of discussion that ultimately inspired a flood of pamphlets and plays, most of which offer some combination of parody, continuation, or critique of their subject. I begin by situating both phenomena within their historical context before examining their interaction in the play "Figaro, directeur de marionnettes," which brings Figaro in direct contact with Fluidas, a satirized mesmerist. I suggest that neither phenomenon can be understood in isolation, but rather that they coexist as products of a certain mode of social and literary exchange. My project was funded by a Perry Summer Research Award from Whitman College. Faculty Sponsor: John Iverson

Madeline Jacobson | Searching for the Mind: Psychological Discourse in Gothic Literature, 9:30 a.m.

From its inception in mid-18th century Britain, the Gothic novel has been inseparably connected with human curiosity about the mind and its aberrations. Gothic literature opened up a cultural exploration of the psyche at a time when the study of the mind was undergoing substantial change, shifting from a methodology centered on the philosophy of the soul to one involving an empirical examination of the brain. In my presentation I argue that two late 19th-century Gothic texts, "Dracula" and "The Strange Case of Dr. Jekyll and Mr. Hyde," juxtapose science and the supernatural to address a growing anxiety in Victorian England about the limits to understanding the human mind. My analysis is an attempt to explore the history of psychology through a literary lens, which I hope will provide new insight into the way the emergent field was perceived by a general reading public. Faculty Sponsor: Sharon Alker

Aaron Aguilar Ramirez | Between Life and Death: Eroticism, Suicide and Dissidence in the Writings of Arenas and Piñera, 9:45 a.m.

My presentation explores the value of life and death in the autobiography of Reinaldo Arenas and in the fiction of Virgilio Piñera. The act of writing for both authors took a consciously reactionary role in Cuba, with taboos of homosexual erotic desire and suicide at the center of their work as a means of political dissidence and making life worth living. I analyze the dialogue between Piñera's novel and Arenas' autobiography around the meaning of life to a gay

man and writer by taking homosexual eroticism and suicide as tools for legitimizing life. My analysis emphasizes the Cuban historical and political context and veers away from simplifying dichotomies of the foreign. My presentation will be multidisciplinary: part literary analysis of the autobiography and novel, part historical discussion to provide further context for the literary analysis. Faculty Sponsor: Alberto Galindo

Encounters

Reid Ballroom B

Sabrina Wise, moderator

Yonah Biers-Ariel | Why God Likes Sin, 9 a.m.

My presentation examines the Gospel according to Luke and discusses Jesus' prioritization of humility and gratitude over duty and law. In the parable of the prodigal son, for example, Jesus emphasizes that those who obey God out of love will be rewarded over those who only obey God out of duty. The love that Jesus illustrates here is a love that springs from recognition of human fallibility and humble gratitude for God's forgiveness. For humans to recognize these failings and love God through them, the failings must exist (and be apparent) in the first place. In fact, when a sinful woman washes Jesus' feet with her hair, he appears to advocate sin as a necessary step in acknowledging human failings, displaying humility, and then acting out of love. Because Jesus prefers repentant sinners to righteous people, I conclude that Jesus values sin. Faculty Sponsor: Jennifer Mouat

Benjamin Roberson | Apocalyptic Feminism in Revelation and "The Handmaid's Tale," 9:15 a.m.

Although often relegated to fundamentalism, the Book of Revelation is pertinent to understanding not only Christianity as a whole, but contemporary apocalyptic narratives as well. A key element of Revelation is the patriarchal view of women exhibited through the contrasting nature of the Celestial Mother and the Whore of Babylon. This presentation examines the interaction between these two characters through the Whore as an incarnation of Antichrist and the Mother as the life-bringing God-like female. In Margaret Atwood's contemporary apocalyptic novel "The Handmaid's Tale," the Whore is held as the pinnacle of femininity, while the Mother becomes an antagonistic agent of the Apocalypse – effectively reversing the roles of these archetypes found in Revelation. I use these two texts and Catherine Keller's "Apocalypse Now and Then" to establish the way the role of women in Apocalypse has changed through social movements and pressures. Faculty Sponsor: Courtney Fitzsimmons

Samuel Chapman | Odysseus' Greatest Lie, 9:30 a.m.

My presentation examines Homer's "Odyssey" and attempts to prove the hypothesis that the four books (9-12) known as the "wanderings" of Odysseus are a fabrication by the protagonist himself. Consideration is also given to other epic lies told over the course of the poem, differing treatments of the supernatural in books 9-12 than in the rest of the Trojan Cycle, motivations for the lies, and the attitudes of the gods. Faculty Sponsor: Adam Kirtley

Sabrina Wise | Sensation of a Void: Exile, Awareness, and Evil in Genesis and "The Plague," 9:45 a.m.

Religious and philosophical thinkers have long disputed the instrumental value and moral justification of evil. My presentation analyzes Genesis 3 and Albert Camus' "The Plague" as expressions of the two sides of this debate. Approaching the texts as exile narratives, I argue that the physical and emotional exile they depict provides insight into their conflicting conceptions of evil. Camus' characters view their isolation as a temporary state to be fought and overcome, while Adam and Eve internalize exile as a permanent aspect of their humanity. This difference gives rise to a larger contrast: Genesis 3 presents evil as justified, while "The Plague" does not. It is the striking similarity of the exile experiences depicted in the texts that proves particularly telling, emphasizing that, regardless of whether people justify evil, its torments will still be torments, and the responses it demands on Earth will be the same. Faculty Sponsor: Courtney Fitzsimmons

The Physical Universe

Science 100 (Brattain Auditorium)

Zach Schierl, moderator

Bryant Fong | BalloonSAT: Educational Outreach and High Altitude Atmospheric Research, 9 a.m.

BalloonSAT is an educational outreach and scientific research program at Arkansas State University (ASU) using weather balloons to study the physical and chemical properties of the lower atmosphere. Weather balloons carrying payload boxes with instruments containing various atmospheric monitoring instruments ascend to the stratosphere up to 87,000 ft (25km) to investigate temperature, water content, and light intensity as a function of altitude. BalloonSAT is an inquiry-based approach with hands-on learning experiences that engages elementary to graduate students in edge of space exploration. Results are comparable with other high altitude studies, such as airplanes and unmanned aircraft systems (UAS) in stratospheric water vapor reduction and boundary layer identification. This research was done with Dr. Hashim Ali and Dr. Tillman Kennon at ASU and funded by the Arkansas Space Grant Consortium and the National Science Foundation. Faculty Sponsor: Frank Dunnivant

Alexe Helmke | Observing the Sun, 9:15 a.m.

This project is a continuation of a long term study that monitors the Sun from Whitman's own Hall of Science roof. Using the college's 106mm (4 inch) Takahashi refractor, Daystar H-alpha filter, a high-end DSLR camera as well as a video recording camera with a CCD detector, we capture high resolution images and videos of the Sun in the 6563 angstrom Balmer line. From these images, we can determine the number and morphology of sunspots and prominences. Empirical evidence suggests that the number of sunspots on the Sun is linked to the climate on Earth. Long term monitoring projects, in collaboration with international efforts, will allow us to add to these studies. Faculty Sponsor: Nathaniel Paust

Samuel Schonfeld | Isochrone Fitting of NGC 6712, 9:30 a.m.

To study astronomy necessarily requires an understanding of stars, the dominant source of light in the universe. Yet the precise workings and mechanisms of a star's life are difficult to discover because we can only take snapshots of stars now, at some unknown point in their life. To piece together the complete picture requires combining the measurements of many stars at different points in their lives into a cohesive movie. The easiest and most effective way to study stars en masse is by observing globular clusters, tightly packed balls filled with some of the oldest stars in the universe. We used the Hiltner 2.4m telescope (part of the MDM facilities at Kitt Peak, Ariz.) to obtain images of the globular cluster NGC 6712 in B,V, and I filters. Using this data we created color magnitude diagrams and fit them with stellar evolution model dependent isochrones to compare with previous results. Faculty Sponsor: Nathaniel Paust

Zachary Schierl | Origin of Sinuous Channels on Ascreaus Mons, Mars, 9:45 a.m.

Ascraeus Mons is one of three large shield volcanoes in the Tharsis region of Mars. Ascraeus Mons is bounded by rift aprons on both its northeast and southwest flanks. The rift aprons are incised by numerous sinuous channels that exhibit complex, braided, and anastomosing channels. Interpretations of the origin of these channel systems include formation by either fluvial or volcanic processes. We will use spacecraft imagery and GIS to locate and map all such channels on the SW rift apron of Ascraeus in order to study the relationship between the sinuous channels and other features on the rift apron and determine the most likely mode of formation. The project will be supplemented by field studies of channels in recent lava flows on the island of Hawa'ii that could potentially be analogous to the features observed on Mars. This project was funded by the Keck Geology Consortium. Faculty Sponsor: Patrick Spencer

Chemistry Matters

Science 151

Mitchell Lee, moderator

Ruben Raychaudhuri | A Brief Computational Study of the Active Site of Carbon Monoxide Dehydrogenase, 9 a.m.

Carbon monoxide dehydrogenase (CODH) is an enzyme which catalyzes the oxidation of carbon monoxide (CO) to carbon dioxide (CO2) while generating 2H+ and 2e-. Organisms containing CODH utilize CO as a source of energy and CO2 for carbon. Reactions catalyzed by enzymes take place at their active sites, which in the case of CODH is characterized by a unique sulfur-bridged dinuclear molybdenum-copper cluster. Understanding the geometric and electronic structures of this cluster and the effect of surrounding amino acids on the active site is important for understanding the conversion of CO to CO2. Elucidating the mechanism could have important consequences for alternative energy research; a synthetic CODH could be used to power a fuel cell. Here, we attempted to develop the groundwork for a robust DFT (density functional theory) based computational model to investigate the oxidation states of the metal centers, active site geometry and electronic structures of CODH. Faculty Sponsor: Dalia Rokhsana

Yon Choi | An Analysis of Surface Tension on Anionic Hydrotropic Salts in Solutions Containing Sodium Octyl Sulfate Micelles Using the Drop Weight Method, 9:15 a.m.

Surface tension measurements were taken using the drop-weight method to investigate the behavior of anionic hydrotropes in solutions containing sodium octyl sulfate (SOS) micelles. Differing concentrations of the structurally similar anionic hydrotropes sodium benzene sulfonates (SBZ) and sodium cumene sulfonates (SCS) were compared in varying concentrations of SOS. SCS was found to lower the surface tension with increasing concentrations, behaving like a normal surfactant. In the presence of micelles, the increasing concentrations of SCS showed very little change in surface tension. Increasing concentrations of SBZ increased the surface tension at lower concentrations before decreasing the surface tension. In the presence of micelles, BZS displayed a small decrease in surface tension. Faculty Sponsor: Allison Calhoun

Alec White | A Xe NMR Study of Hydrotropes in Solutions Containing Sodium Octyl Sulfate Micelles, 9:30 a.m.

Micellar systems have a variety of applications as detergents, emulsifiers, and possibly as drug delivery systems. Hydrotropes, or compounds that increase the solubility of hydrophobic substances in water, have similar applications but do not display such clearly defined aggregation behavior. Atomic xenon (Xe) is an ideal probe for such environments due to its affinity for hydrophobic cavities and sensitivity to the surrounding chemical environment. In this study, xenon nuclear magnetic resonance (NMR) spectroscopy is employed to study the aggregation behavior of hydrotropes in a solution of sodium octyl sulfate micelles. We report a systematic dependence of the Xe chemical shift on hydrotrope concentration and use this data to gain insight into the aggregation behavior of the hydrotropes in these systems. Faculty Sponsor: Allison Calhoun

Kira Peterson | Elemental Analysis of Mo'orean Scleractinian Corals by Flame Atomic Absorption Spectroscopy (FAAS), 9:45 a.m.

Coral reefs throughout the world are losing diversity due to coral bleaching. In particular, it has been noted that coral bleaching events affect some coral species more than others. In an effort to understand the disparities between these corals, scleractinian corals were collected off the island of Mo'orea in French Polynesia and historical samples of French Polynesian corals were obtained from the Smithsonian Institution. A proposed comparison of historical chemical compositions of Mo'orean corals versus current compositions may return a relationship between the viability of a coral species and its constituent elements. The aragonitic coral matrix can substitute metal ions such as manganese, strontium, and magnesium for calcium. An elemental analysis of successful, unsuccessful, historical and current corals may prove enlightening in understanding why some French Polynesian corals succeed while others nearby fail. This project was funded by Kristine Nelson and a Perry Summer Research Award from Whitman College. Faculty Sponsor: Allison Calhoun

Mitchell Lee | Elemental Analysis of Mo'orean Scleractinian Corals by Scanning Electron Microscopy and Energy Dispersive Spectroscopy (SEM-EDS), 10 a.m.

Scleractinian corals were collected from the South Pacific island of Mo'orea, and historical samples were obtained from the Smithsonian Institution. All samples will be cleaned and embedded in epoxy. One face will be ground down and polished. These samples will be imaged and analyzed by SEM-EDS. My analysis will provide elemental maps overlaid on images of coral faces. From these images, patterns in precipitation of non-calcium elements into the coral skeleton can be characterized and compared by species, genera, location, and time. My analysis may help to explain why some corals coexisting on the same reef are thriving while their neighbors are dying off. This project was funded in part through a Perry Summer Research Award from Whitman College. Faculty Sponsor: Allison Calhoun

Environmental Impacts and Politics

Science 165 (Gaiser Auditorium)

Julia Stone, moderator

Emily Doyle | The Decomposition and Oxidation of Crude Oil, 9 a.m.

Oil spills are devastating to the natural environment, poisoning the ocean, destroying coastal habitat, and suffocating and killing marine creatures. The various processes of decomposition for crude oil have been studied to determine the effects of crude oil that remains in the environment. However, most studies solely examine the UV-volatilization of crude oil that is exposed to the sun's rays while floating on the ocean's surface. How does crude oil decompose after UV-volatilization, when the remaining heavy asphaltene compounds sink to the ocean floor? This research uses thermal gravimetric analysis (TGA) and the oxygen induction times test (OIT) to examine the oxidation of post-volatilization crude oil and to determine its rate of decomposition, creating a better understanding of oil spills' lasting effects on the environment. Faculty Sponsor: Allison Calhoun

Rachel Alexander | Mining and Protest in Intag, Ecuador, 9:15 a.m.

The cloud forest region of Intag, Ecuador is known for its spectacular biodiversity and abundant copper deposits buried beneath its soils. Over the past two decades, mining has become a heated political issue in the region. Although ostensibly socialist and committed to environmental protection, President Rafael Correa has pursued a very pro-extraction agenda despite the fact that the majority of Intag's residents are opposed to large-scale mining. Based on a month of reporting for a local paper on existing mines in the region, my presentation argues that local anti-mining groups, in order to be successful, must focus on expanding their development projects within Intag to provide a concrete alternative to mining for the region's future. Faculty Sponsor: Phil Brick

Hayley Mauck | The Celebritization of Environmental Politics: Amusement or Advancement?, 9:30 a.m.

The environmental movement advocates less consumption and increased recycling; the entertainment industry operates on sustained consumption of commodities and wasteful habits. My presentation examines the influence of the entertainment industry – more precisely, celebrity involvement – on the environmental movement in the context of cultural ideology and the successful implementation of environmental ideals through various strategies under the rubric of sustainability. As climate change becomes an increasingly urgent issue, a consideration of the viability of strategies – particularly market-based strategies – is essential. I argue that celebrity involvement in the environmental movement isn't a beneficial strategy, citing Horkheimer and Adorno's theories of cultural repression in "The Culture Industry: Enlightenment as Mass Deception," which illustrates that celebrity involvement is counterproductive. Faculty Sponsor: Phil Brick

Shelly Le, Sean McNulty, Monica Simmons, Julia Stone | Reflections on a Summer in Guatemala: Studies in Sustainable Development, 9:45 a.m.

This summer, five Whitman students spent nine weeks living and working with a small community of subsistence corn farmers on the coastal lowlands of southern Guatemala. Arriving with the idea of a potential stove improvement

project, we attempted to build relationships with the community, investigate community life, assets, and needs. Examining the inefficiencies of wood use and its economic and environmental effects, we conducted a two-month long community research project focused primarily on dietary habits and kitchen practices. In our presentation, we share what we learned through this experience and the process of student-led development. During our time in Guatemala, we learned about the complexities of nonprofit development work, the interlocking nature of poverty, the delicate cultural considerations of development, and avoiding the paternalistic, imperial hegemony of imposition and inconsideration, weighing the use of limited resources within the community. This project was funded in part by ASWC. Faculty Sponsor: Robert Carson

Arab Springs and Other Revolutions

Kimball Theatre

Molly Johnson, moderator

Benjamin Menzies | Eelam in Exile: Nationalism in the Sri Lankan Tamil Diaspora, 9 a.m.

In the wake of the defeat of the separatist Liberation Tigers of Tamil Eelam at the hands of the Sinhala-dominated government of Sri Lanka, virtually all members of the Tamil minority within Sri Lanka saw the end of the war as a chance to rebuild, having little interest in continuing to pursue a separate state for Tamils. Sentiment among Tamils living abroad diverged sharply, with diaspora Tamils immediately undertaking preparations to form new organizations to advocate for a separate state of Tamil Eelam despite the end of the Tigers. Borrowing theory from Benedict Anderson and using research into Tamil communities outside Sri Lanka, my presentation examines how diasporic processes of physical separation combined with continued cultural connection to the "homeland" of Tamil Eelam contributed to the formation of a uniquely diasporic Tamil identity: an imagined community united by separation from the same homeland and same history. Faculty Sponsor: Daniel Kent

Kelley Hall | Al Jazeera: A Pipeline for Revolution, 9:15 a.m.

Jan. 14, 2011 marked a defining moment in the Middle East North Africa region. On this day, President Ben Ali Zine al-Abidne fled Tunisia for Saudi Arabia. His 23-year long rule over Tunisia had toppled after just 28 days of protests. The Tunisian revolution came to fruition by communication technologies such as the Internet and satellite television, specifically Al Jazeera. Al Jazeera, a leader in the region, broadcast the revolution beyond the borders of Tunisia to the wider world. The network quickly adapted to new media, broadcasting cellphone video produced in the region on widely viewed programs. Al Jazeera acted as a crucial pipeline for revolutionary sentiments that traveled not only within Tunisia but also throughout the greater global community. Faculty Sponsor: Ashley Esarey

Mitchell Dunn | Chinese Propaganda and the Arab Spring, 9:30 a.m.

In a world of growing political dissent in China and easier access to global information, the Arab Spring represents an interesting and somewhat dangerous situation for the Chinese Communist Party. One the one hand, the events of the Arab Spring could inspire a "Jasmine Winter," in which Chinese citizens become politically mobilized against the CCP's grip on authoritarian power. On the other hand, the disruptive and chaotic nature of the Arab Spring could dissuade the Chinese populace from revolutions due to fear of political chaos. My presentation examines how the CCP portrayed two very different revolutions in Libya and Egypt. My findings are based on articles released by a state-sponsored news outlet. My presentation will also draw from statistical data to illustrate that the CCP emphasized the violent nature of Libya relative to the peaceful nature of Egypt in order to deter protests in China. Faculty Sponsor: Ashley Esarey

Dhavan Vengadasalam | After the Reformasi: Visions of Political Reform in Malaysia, 9:45 a.m.

In the past year, many countries experienced an urgent demand for political reform by civil society organizations and opposition leaders. My research focuses on Malaysia and examines how the country's current political structure may have negative impacts on its future. Information culled from readings and discussions of Malaysian politics during the late 1990s serves as background for my examination of Malaysia's current political situation. Arab Spring movements have reached Malaysia; the country has begun to cope with protests and strong anti-government sentiment

– sentiment reminiscent of the Reformasi movement during the late 1990s. From my research, I argue that Malaysia's current political structure is threatening the country's political future. Because of current civil unrest, reform may be necessary in order to prevent an overthrow of the government similar to those in Libya and Egypt. Faculty Sponsor: Ashley Esarey

Molly Johnson | Balancing Islam and Politics: Al-Banna's Brotherhood and Egypt's Contemporary Freedom and Justice Party, 10 a.m.

The Muslim Brotherhood was founded in 1928 by revolutionary thinker Hasan al-Banna, who strove to reform the ills of Egyptian society by returning to an Islamic state. The Muslim Brotherhood is the oldest and one of the largest Islamist organizations and political opposition groups in the world and has influenced Islamist organizations ranging from Hamas to al-Qaeda. In contemporary Egypt, the Muslim Brotherhood has an opportunity to be elected to political power and act as the ruling party. The Brotherhood's Freedom and Justice Party represents both the longstanding ideologies from its founding and the hopes of millions of Egyptians who want freedom and democracy but continue to wonder as they have for decades: Is Islam the solution? My presentation explores the religious and political ideology of the Egyptian Muslim Brotherhood in a post-Arab Spring Egypt. Faculty Sponsor: Jocelyn Hendrickson

Food for Thought

Reid GO2

Hannah Joseph, moderator

Suzanne Jaszczult | The Meaning of Meat: Politics of Diet in Gujarat, India, 9 a.m.

In a country with a strong tradition of vegetarianism, eating meat is an act that informs identity and creates cultural and political divisions. In Gujarat, India's most communally divided state, changing eating habits signal a broader cultural shift. In this context, an important question arises: Who is eating meat? Who is "veg" and why? I will address these questions in a presentation based on research completed during a semester abroad in India. Faculty Sponsor: Paul Apostolidis

Marcial Díaz Mejía | The Globalization of Food Consumption in Guatemala City, 9:15 a.m.

Guatemala City is becoming another globalized city that strives to be more modern, cosmopolitan, and more similar to the United States and Western Europe. Food choices and consumption in the city have changed significantly over the past 20 years. Fast food chains such as Pollo Campero (the local brand of fried chicken) and McDonald's are standard fare in food courts and other locations all over the city. In Guatemala City fast food has often been associated with American culture, and consuming it gives status to locals, as it is not the cheapest food alternative available. I explore how the aspirations and food habits of working-class and middle-class Guatemalans are changing under the influence of globalized agriculture and the "Americanization" of the country. My research in Guatemala City uses case-study methodology aimed at consumption patterns and perceptions of fast food and Guatemalan food. Faculty Sponsor: Jesse Abrams

Kyla Flaten | Food Consumption and Class Identity on the Whitman Campus, 9:30 a.m.

The issue of food production is becoming increasingly relevant because of its relationship to environmental degradation, farm workers' rights, and the livelihood of farmers and rural communities. As organic-certified markets grow and farmers markets expand, the food movement faces criticism for its elitism and the homogeneity of its supporters. My research looks to examine the relationship between class identity and attitudes and consumption of organic and sustainable food. My methodology consists of in-depth interviews with Whitman students and community members from a variety of socioeconomic backgrounds and interest in food issues. By analyzing the relationship between class and food, I hope to deconstruct the meanings attached to certain foods as well as consider how the food culture on Whitman's campus is experienced differently by students of different social classes. Faculty Sponsor: Jesse Abrams

Sarah Wolf, Lydia Lund, Molly Hayes, Sophie Davis, Lindsay Cameron, Hannah Joseph | Wild Edibles I & II, 9:45 a.m.

In attempts to better understand our surrounding resources, a small group of natural science students has explored wild edible plants in the inland Northwest. By foraging native and weedy species, we have learned plant identification techniques, toxic look-a-likes, and creative methods for cooking up wild meals. Some of our foraged plants include black walnut, thistle, and sumac. Over the course of the year, we have foraged, tasted, and judged whether the final product is worth the foraging time. Most often it is, and we will share our secrets with you. Faculty Sponsor: Delbert Hutchison

Children and Poverty

Sherwood 222

Evelina Miropolsky, moderator

Stacey Rosenzweig | Newborn Health in Arica, Chile, as Seen Through the Practice of Breastfeeding, 9 a.m.

The first months of a child's life are critical to his or her future health. UNICEF and WHO suggest exclusive breastfeeding for the first six months of life to ensure optimum growth and health of the baby. Breastfeeding rates in Arica, Chile, as in the rest of the country, have been declining in recent years. Health officials suggest that Arican mothers are not accurately reporting breastfeeding habits to nurses and nutritionists. This study aimed to examine the breastfeeding practices of Arican mothers, analyze how breastfeeding rates correlate to the child's health, and determine factors influencing breastfeeding rates. A questionnaire was distributed to mothers at a local health clinic and interviews were conducted with health personnel. The results of this study will be presented to assess the changing demographic of mothers who are breastfeeding, with a goal to assist the Minister of Health in increasing breastfeeding rates in the area. Faculty Sponsor: James Russo

Helen Jenne, Nick Tacke, Lillian Bailey, Sarah Stanger | The Effects of Socioeconomic Status on Infant Manual Exploration, 9:15 a.m.

Infant object exploration is any activity used to acquire information; it forms the foundation for later cognition. Children in poverty show cognitive deficits associated with information processing, but the origins of these deficits are unknown. Our study investigated differences in object exploration between infants of high and low socioeconomic status. We tested the same high and low SES infants at 6, 9 and 12 months by presenting them with a toy for two minutes and recording their oral, manual, and visual exploratory behaviors. While high SES infants showed the developmental trajectory consistent with the literature, low SES infants did not. This implies that low SES infants do not show the same increases in sophistication of their exploratory strategies. Continued research in this area can help clarify the nature of these patterns and may be essential in closing the gap between socioeconomic groups. Faculty Sponsor: Melissa Clearfield

Peter Olson, Lauren Hopson | Early Effects of Maternal Stimulation on Attention in Low Socioeconomic Status Infants, 9:30 a.m.

An increasing number of Americans living in poverty are children. Studies have shown that low socioeconomic status infants have reduced attention levels compared to their high SES counterparts. Socioeconomic status also affects the way that mothers verbally, visually, and physically stimulate their children. This results in less joint attention, which facilitates learning by creating a shared focus of attention between a mother and her infant. We observed 32 infants at 6, 9 and 12 months of age playing with toys while on their mother's lap. The purpose of our study was to test maternal stimulation by examining complexity and output. We hypothesize that high SES mothers stimulate their infants more than low SES mothers, and that infants express higher levels of attention across SES if their mother demonstrates more verbal, visual, and physical stimulation. Results will be presented as a correlation between maternal stimulation and infant attention. Faculty Sponsor: Melissa Clearfield

Autumn Knutson, Lindsay Olson, Evelina Miropolsky | Poverty's Effects on the Development of Adolescent Identity, 9:45 a.m.

Poverty affects adolescents in many areas of identity formation, the primary psychosocial outcome of adolescence. Social interactions play a crucial role in identity formation. Adolescents' relationships with parents, teachers, and mentors can enhance the process of identity exploration and formation. These relationships are likely to vary depending on socioeconomic status. Our study explores whether living in poverty affects adolescent identity formation, and the role of perceived relational support (from parents, teachers, and mentors) in identity formation. We predict that adolescents growing up in poverty will have less fully-formed identity styles, whereas those not affected by poverty will have more fully-formed identity styles. Furthermore, we predict that perceived closeness to parents, teachers, and mentors improves the process of identity formation across the board, and teacher and mentor relationships may be more valuable to adolescents affected by poverty whose parents may be less present. Faculty Sponsor: Melissa Clearfield


WHITMAN COLLEGE

session II

10:45-noon

Hip (-Hop) Culture

Olin Hall 130

Samuel Alden, moderator

Heather Smith | Deconstructing the Starbucks Experience: Consumption Patterns and Attitudes of Gourmet Coffee Drinkers, 10:45 a.m.

The Starbucks Corp. has grown from a small store in the fish market of Seattle, Wash., to a globally recognized icon of corporate America. Not only has Starbucks rapidly expanded geographically, but also its products and the experience of its coffee shops have become essential aspects of the daily lives of many Americans. The so-called "Starbucks experience" and consumers' relationships to coffee shops inspires questions about culture, status, social spaces, and characteristics of the American consumer. My presentation compares the micro-level consumption patterns and attitudes of Starbucks patrons to those of patrons of other coffee shops in order to deconstruct the objects, symbols, identities, and experiences associated with Starbucks. My research is intended to prompt a discussion of the American consumer, identity-creation, and the significance of place in contemporary society. Faculty Sponsor: Brooke Neely

Amanda Arriola | Are Wine Futures a Good Financial Investment?, 11 a.m.

Investing in wine futures (en primeur) has become popular among wine connoisseurs and people who invest in wine. Buying wine futures is a process of buying wine after it is made but before it is bottled and released -- committing to purchase before tasting the wine. There are many factors that determine the price of wine futures. One factor is the "Parker score." Robert Parker is a wine critic who samples and rates wine every year before their future prices are set by wine producers. He scores the wine and publishes the scores in his well-known journal, The Wine Advocate. I analyze if Parker's scores affect the returns on wine futures. Do highly rated wines have better returns than poorly rated wines? My presentation attempts to answer these questions and to assess whether wine futures have returns that are above standard asset classes similar to stocks. Faculty Sponsor: Lee Sanning

John "Julian" Helmer | Unwritten and Unraveled: The Roots' "undun" as Sociopolitical Critique, 11:15 a.m.

Each generation of new hip-hop artists is born with their own styles and world views. These artists vary in lyrical focus, production, and certainly in their intent. One group, The Roots, formed in 1987 and still making relevant music, have been a staple in hip-hop culture going on 25 years. In their new album, "undun," lyrics explore the life and death of a young drug dealer trying to survive discrimination and poverty in urban America. The Roots' success and social message beg the questions: How are issues of racism and classism represented in hip-hop today? How has hip hop evolved both as a black protest music and as a form of sociopolitical critique? How do The Roots embody this evolution? Come learn why hip-hop is more than just something to bob your head to. Faculty Sponsor: Keith Farrington

Shane Young | No Skinny Jeans Allowed: Examining the Push for "Real Hip-Hop," 11:30 a.m.

Over the past four decades, hip-hop music has gained tremendous commercial success, crossing over into nearly every popular musical genre. However, as hip-hop continues to dominate mainstream music, some fans emphasize, often enthusiastically, the need to return to the roots of "real hip-hop," an era that coincides with hip-hop's origins in the 1970s and '80s, when the music focused on conscious lyricism, diverse styles and remained true to the humble origins

from which the genre arose. In my presentation, I analyze the arguments of such fans, and the historical validity of their views by examining the lyrics and production of hip-hop songs from the past four decades. I conclude that such arguments often have a skewed understanding of hip-hop's history and that many current mainstream hip-hop artists have more in common with their musical forefathers than they are generally given credit for. Faculty Sponsor: Keith Farrington

Samuel Alden | How To Draw a Very Long Comic Book, 11:45 a.m.

For the past three years I've been writing and drawing a graphic novel about middle school titled "Eighth Grade," the first 120-page installment of which I plan to publish in 2012. My presentation will parse out the unique creative process of making a comic book, from conception to finished pages. I'll also explain a lot of the literary devices I created to take full advantage of the bizarre storytelling medium that is comics, such as echo panels, single-page perspective, and spread scenes. Finally, I'll talk about the unique challenges of working on extremely long-term art projects while still in college. This work was accepted into the 2010 graphic novel "intensive" workshop at the Atlantic Center for the Arts in Florida, and revised under the instruction of cartoonist Craig Thompson. Faculty Sponsor: Mare Blocker

Canadian Literary Plurality

Olin Hall 157

Patricia Vanderbilt, moderator

The Canadian literary imagination has long been fascinated with the concept of multiculturalism, a distinctly hybrid form of identity that has served as the core of Canada's national and political identity. Over the last 30 years, however, Canadians have often expressed discomfort with this form of cultural pluralism which has been increasingly seen as overly simplistic and reductive. In response, Canadian authors have revealed the limits of older models of cultural cohesion and hybridity and imagined new ways to articulate a distinctly Canadian multiplicity. The papers in this panel explore the way four different contemporary Canadian novelists – Hiromi Goto, Sky Lee, Rohinton Mistry, and David Chariandy – engage with this creative process.

Nicholas Michal | The Creation of Communal Hybrid Spaces in "Soucouyant," 10:45 a.m.

Canada's emphasis on multiculturalism attracts immigrants to the country. Yet, when they arrive they often discover a variety of pressures and anxieties imposed by the "normalizing" Canadian experience. This anxiety has special import for second-generation immigrants, as they are cut off from traditional experience of their country of origin (that their parents suppress in order to assimilate) and from Canadian society (in which they are marginalized). David Chariandy, in his novel "Soucouyant," examines the dilemma of second-generation migrants in terms of language and memory, and I posit that his explorations produce spaces that allow a "new" type of Canadian identity to emerge, one that works through hybridity to create shared communal spaces. My presentation explores the complications of hybridity, the types of spaces that are produced, and how and why they are effective in creating a new Canadian identity. Faculty Sponsor: Sharon Alker

Alex Pearson | Mixing Food and Language: Towards a Transnational Identity in "Chorus of Mushrooms," 11 a.m.

Hiromi Goto's novel "Chorus of Mushrooms" presents the struggles for identity faced by Naoe, an elderly Japanese-born immigrant to Canada, and her granddaughter Murasaki. My presentation investigates how the women construct their personal identity in relation to their two national identities. Some postcolonial theorists conceive of a hierarchical form of hybridity, but Goto's text works with and extends Bill Ashcroft's description of the transnational, which involves the ability to participate fluidly in several cultures simultaneously. Goto applies Ashcroft's idea to the realms of food and language. With their transformative capabilities, each becomes key to the construction of personal identity. But Goto goes beyond mere symbolism, breaking down the conventional stability of figurative categories of language and allowing the food and language of the two cultures to stand for each other literally and metaphorically. This dual conflation reflects the intricacy of transnational participation, providing a new understanding of hybridized identities. Faculty Sponsor: Sharon Alker

Alyssa Whitt | Examining Canadian Hybridity in Sky Lee's "Disappearing Moon Café," 11:15 a.m.

The "mosaic" concept of nation in Canada in which different ethnicities coexist harmoniously is contradicted by historical experience. This painful history is explored in Sky Lee's "Disappearing Moon Café." In Lee's novel, generations of Chinese-Canadian characters negotiate a hybrid identity in their own way, often painfully. Their success is contingent upon external factors such as immigration policies and oppressive social practices as well as their individual capacity or incapacity to move toward hybridity. Each character fights a preoccupation with the damaging effects of past oppression as well as the lingering complications of government-approved and institutionalized racism in the present, even when such practices no longer officially exist or are condoned. Ultimately, Lee demonstrates that individual hybridity can only be achieved over time if there is a national will to improve social-political policy alongside individual determination to face the secrets of the past. Faculty Sponsor: Sharon Alker

Patricia Vanderbilt | Negotiating Identity in Relation to the Nation: Finding the Fine Balance, 11:30 a.m.

In "A Fine Balance," Rohinton Mistry rejects the nation as a viable center around which to form an identity. In his portrayal of India during the Emergency, Mistry critiques the oppressive societal tendencies upheld by the nation in the name of progress. This rejection of the nation makes migrants out of its central characters, who then form a community that surpasses the confines of the nation though it exists within India. The fragile community is destroyed, however, indicating a lack of faith in its sustainability as an alternative. Yet Mistry's novel is not completely pessimistic. "A Fine Balance" uses quilting and storytelling as metaphors for stitching an identity that, while individual, make creative connections that are not grounded in the space of the nation. Faculty Sponsor: Sharon Alker

Youth Culture

Reid, Ballroom B

Mackenzie Gerringer, moderator

Hannah Moskat, Katelyn Sorenson | Emotional Intelligence and Aggression Predict Juvenile Offense, 10:45 a.m.

Adolescents do not always make the wisest decisions, leading to a high rate of delinquency. Research demonstrates the strong relationship between aggression and delinquency, but we believe there are other factors contributing to juvenile offense that are worth exploring. Our study is focused on emotional intelligence, which is defined as a "the ability to monitor one's own and other's feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and actions." (Salovey & Myer, 1990, 189) We investigate the relationship between juvenile offense, aggression, EI and sex at the Walla Walla Juvenile Justice Center. We predict that offense type will be stratified by sex and EI, and that EI will negatively correlate with aggression. We hope that this research will help steer preventative and rehabilitative techniques for the Juvenile Justice Center. Faculty Sponsor: Melissa Clearfield

Jeremy Norden | Positive Peer Pressure, 11 a.m.

The impact of peer groups on an individual's development is seen in all racial, social, and economic groups. Every student has been influenced by his or her peers, and to some degree, everyone is susceptible to peer pressure. Mainstream media and academia have tended to cast peer pressure in a negative light, but it is important to note the positive impact that peer groups have on development. One's peer group is likely to be the most important factor in making the decision to go to college. It will determine one's level of physical activity, and, overall, will likely have the largest impact of all factors on a child's development. In my presentation, I illustrate the high level of impact peer groups have on development and discuss ways that parents can intentionally and proactively use this information when selecting activities for their children to participate in. Faculty Sponsor: Keith Farrington

Kelsie Baher | "We Are Who We Are!": A Neo-Tribal Invasion of Subcultural Theory in Contemporary British Society, 11:15 a.m.

Teddy Boys, Mods, Rockers, Skinheads, and several other British youth subcultures come to mind when considering the role of young people in post-World War II British society. Adolescents of similar socioeconomic class status came together and expressed themselves through die-hard musical allegiances and distinct fashion styles. But as time has passed, the trend of pinning down groups of youth with a neat and tidy label has become less common, if not impossible. Neo-tribal theory posits that contemporary British society is now made up of class-flexible adolescents who are socially driven by individual tastes and patterns of consumption. My presentation stems from an empirical study conducted with British youth ages 16-25 that attempts to determine the ways in which young Brits identify themselves and their friend groups in 2012. Faculty Sponsor: Michelle Janning

Mackenzie Gerringer | The Edelweiss Pirates, 11:30 a.m.

On Nov. 10, 1944, Barthel Schink was publicly hanged without trial at the age of 16. The Gestapo arrested Schink for his involvement with the Edelweiss Pirates, a collection of young men and women fighting for freedom in the Third Reich. Working-class adolescents, who grew to despise Nazi restrictions and ideologies, began to resist in the late 1930s. Able to recognize each other by an Edelweiss flower pinned to their collar, the pirates vandalized city walls with anti-Hitler slogans, threw bricks into munitions factories, distributed leaflets, looted supply trains, and fought members of the Hitler Youth in the face of harsh punishments. My presentation provides a brief history of the Edelweiss Pirates. I also address modern film and literary depictions of the group and why history seems to ignore it. "Our song is freedom, love, and life. We're the Pirates of the Edelweiss." Faculty Sponsor: Susan Babilon

Earth History

Science 100 (Brattain Auditorium)

Matthew Hanson, moderator

Matthew Hanson | Archean Basement in Yellowstone National Park: Implications for Early Earth History, 10:45 a.m.

The northern portion of Yellowstone National Park exposes a series of glacially polished knobs of Archean basement rocks that provide insight into the origin of continental crust. Using uranium dating, whole rock geochemistry, and petrographic analysis, this project will correlate the granitic Slough Creek intrusion with other nearby Archean rocks. This will provide a better understanding of the geologic setting and processes responsible for the creation of felsic continental crust in the North American Plate. My research was made possible through the National Science Foundation's Research Experience for Undergraduates. Faculty Sponsor: Kirsten Nicolaysen

Matthew Morriss | Ancient Rivers in Eastern Washington: A Study of the 15-Million-Year-Old Clearwater-Salmon River, 11 a.m.

Drainages originating on the periphery of the Columbia Plateau have fluvial histories going back to the Miocene (23-5.3 Ma). Numerous flood basalts inundated these paleodrainages, moving river channels, and in some cases, altering the river's entire course. In the Miocene, the Clearwater-Salmon River drained the Clearwater Range in North-Central Idaho. Rocks present in this mountain range represent nearly 1 billion years of sedimentation, metamorphism, and igneous intrusion. Subsequent to channel incision on the Columbia Plateau, the Columbia River Basalts filled in the Clearwater-Salmon's channel, leaving an identifiable interbed of sediment where the river once flowed. In this study, three outcroppings of CWS cobbles were studied stratigraphically, sedimentologically, petrologically, and geochemically. These techniques were employed in order to further understand the course taken by the CWS River, and the changes through time to the provenance area. This project was supported by the Abshire Research Scholar Award. Faculty Sponsor: Patrick Spencer.

Emily Johnson | The Origin of 35-Million-Year-Old Granitoids in South-Central Alaska, 11:15 a.m.

Magmatism along the coast of south-central Alaska is attributed to the west-to-east subduction of a mid-ocean ridge spreading center between 51 and 60 million years ago. An anomalously young suite of 35 million-year-old igneous rocks in Prince William Sound does not fit easily into this tectonic model. Field and microscopic observations indicate that magma mixing is likely a major process during the emplacement of these intrusions. The origin of the magmas themselves is as yet unconstrained thus examination of geochemical results will shed light on the relationship between the tectonic setting and the formation of the parental magmas of these rocks. The Keck Geology Consortium and the National Science Foundation funded this research opportunity. Faculty Sponsor: Kirsten Nicolaysen

Will Bender | A Study of Rubies From Myanmar: Searching for Trace Element Fingerprints, 11:30 a.m.

The Mogok region of Myanmar has long been famous for producing valuable rubies. High pressure and temperature metamorphism is generally interpreted as the process for Mogok ruby formation; however, this hypothesis remains disputed. Recently, complex low-temperature, fluid-rich skarn metamorphism, caused by magma intrusion into carbonate country rock, is an alternative process for gem-quality ruby formation. This newer interpretation has been reinforced by the associated occurrence of rare painite, created only in skarn environments. Depending on the formative process, rubies inherit characteristic trace element compositions, and these further distinguish natural rubies from synthetic forgeries. Using geochemical techniques to measure trace element abundances, I sought to identify distinct trace element fingerprints for each type of formative environment. The National Science Foundation funded this Research Experience for Undergraduates project. Faculty Sponsor: Kirsten Nicolaysen

Kate Elkind, Matthew Hanson | Avalanches: Avoidance and Reducing Risk, 11:45 a.m.

Avalanches are the primary risk factor for winter backcountry recreationalists. This semester the Backcountry Club sent 10 students to an Avalanche Level II course. Over the four-day course the participants learned how to mitigate the risk of triggering an avalanche and how to safely conduct a rescue. Through increased awareness Whitman students can dramatically improve their ability to safely pursue winter recreation in the backcountry. Faculty Sponsor: Brien Sheedy

Hard Science

Science 151

Kayla Hegedus, moderator

Nathan Neff-Mallon | Palladium Catalyzed Coupling Reactions of the 1-carba-closo-dodecaborate^{1-} Anion, 10:45 a.m.

Palladium catalyzed coupling reactions are a diverse group of reactions that are commonly used in organic synthesis to form carbon-carbon bonds. These reactions are both synthetically specific and versatile. One such reaction, the Kumada coupling, has been adapted to create boron-carbon bonds between alkyl groups and the 1-carba-closo-dodecaborate^{1-} anion. In this study, the utility and scope of palladium catalyzed coupling reactions of 1-carba-closo-dodecaborate^{1-} anion has been expanded through the development of a new methodology that takes advantage of the higher pressures and temperatures of microwave reactions. Faculty Sponsor: Marcus Juhasz

Christa Heavey | Diffusion through Nanoscale Pores of Protein Crystals, 11: a.m.

Protein crystals have demonstrated great potential for many applications, but first it is important to understand the transport of molecules through their nanoscale pores. We have studied the diffusion of small molecule dyes through the pores in protein crystals. The rate of diffusion of a solute through a crystal can be described by a diffusion coefficient. Using confocal microscopy and time-lapse imaging, we investigated the diffusion of fluorescent dyes through the pores of protein crystals. We used a solution to the diffusion equation as a mathematical model for our data to determine the diffusion coefficient in each direction of the crystal. We found that the measured diffusion coefficient

varied inversely with the ratio of the radius of the dye particle to the radius of the protein crystal's pore. This project was funded with a grant from the National Institute of Health. Faculty Sponsor: Douglas Juers

Nathan Abrams | The Effect of Helium Upscattering on the Neutron Lifetime, 11:15 a.m.

A free neutron is believed to decay into a proton, electron, and an electron antineutrino with a lifetime of 881.5+/-1.5 seconds. Recent experiments suggest that the actual neutron lifetime is different. The National Institute of Standards and Technology is conducting a multiyear neutron lifetime experiment using a superconducting magnet to magnetically trap neutrons and count decay events. A systematic effect is helium upscattering, which occurs when the energy from helium is transferred to the neutron via absorption of a phonon, which gives the neutron enough energy to escape the magnetic trap. This early exit gives the appearance of a more rapid decay, and a lower neutron lifetime. The goal of my project was to determine the systematic effect of the helium upscattering on the neutron lifetime. Research was performed at NIST in the summer of 2011 and supervised by Dr. Pieter Mumm. Research made possible by grant 70NAN B11088. Faculty Sponsor: Mark Beck

Kayla Hegedus | An Introduction to Neutrino Oscillation, 11:30 a.m.

Neutrinos are fundamental particles of three distinct types, or flavors, but with oscillation, a neutrino of a certain flavor can transform into one of another flavor. This process occurs because the mass states and flavor states of the neutrinos are not identical; instead, they are related by a mixing matrix governed by the differences in the masses and mixing angles. Experiments have confirmed the existence of neutrino oscillation and made measurements of the mixing matrix parameters, but the origin of neutrino mass remains unexplained. In the Standard Model, they are predicted to be massless, and so explanations must reach into new theoretical avenues. I explore the models used to explain neutrino oscillation and speak to their implications for future physics. Faculty Sponsor: Moira Gresham

Ecological Concerns

Science 165 (Gaiser Auditorium)

Maggie Massey, moderator

Olivia Molden | Thalangama, Sri Lanka: A Case Study of the Social and Ecological Effects of Residential Changes in a Community, 10:45 a.m.

The Thalangama Tank (reservoir) system, part of an ancient irrigation network in Sri Lanka, is unique from other tanks due to its proximity to the capital Colombo. Thalangama Tank, in addition to being an engineering relic, is a pivotal resource for its surrounding paddy fields, wetlands, and community. Since the mid-1990s, the reservoir system continues to fragment due to effects of urban sprawl. The influx of migrants seeking amenities presents new challenges for the once agriculturally-based community. Nonetheless, the confluence of new and established residents may yield resilient environmental management strategies that can satisfy local and ministerial interests. My research focuses on possibilities for meaningful communication between community actors that addresses local social and environmental issues within the turbulence of urban development in the Global South. Faculty Sponsor: Jesse Abrams

Kyle Moen | Bluebunch Wheatgrass Demography at Wallula Gap Biological Station, 11 a.m.

Bluebunch wheatgrass is a native species that has declined in our region dramatically over the past 150 years. In western Walla Walla County, this species remains abundant on some north-facing slopes, but is generally rare or absent on south-facing slopes. As part of an effort to understand this pattern, I studied demographic variables of bluebunch wheatgrass including growth, reproduction, and survival over a single growing season on north and south-facing slopes at the Wallula Gap Biological Station. I hope to determine the extent and pattern of within-season variability in measures of plant size, reproductive output, and detectability. My results will inform the design of sampling efforts in future years and provide initial insights into the differences in success of bluebunch wheatgrass individuals between north and south-facing slopes. Faculty Sponsor: Timothy Parker

Katie Tackman | Birth, Growth, Treatment and Renewal: The Role of the Douglas Fir Tussock Moth in a Political Ecosystem, 11:15 a.m.

The results of an exploratory case study of a $1.4 million dollar Tussock Moth treatment project will be discussed, asking the sociological implications behind the removal of a native insect in the Okanogan National Forest. Information attained through personal interviews and mail-in surveys will be presented in the larger theoretical framework of the social construction of risk and political ecology in forest management decision-making. Funding to perform all mail-in surveys is thanks to the generous funding of the Environmental Studies department and support of the Sociology department. Faculty Sponsor: Jesse Abrams

Khoa Nguyen | Evolution of Morphometric Variation in Side-blotched Lizards (*Uta stansburiana*), 11:30 a.m.

The amazing diversity in animal body forms that exists today represents one outstanding example of evolution through the means of dynamic selective pressures. Such selective pressures can include limits on resources (e.g. habitat availability, suitable mates) and the existence of threats (e.g. predation pressure, disease). These factors ultimately vary across space and time. As a result, any or all of these possible selective pressures may have significant effects on the morphology (form and structure) of organisms. By utilizing an intraspecies approach, side-blotched lizards represent an ideal species with which to study the effects and consequences of co-dynamic selective pressures on body morphology. Correlations between two selective pressures: predation and habitat structure were made across six distinct populations of Uta. Insight into the potential variation in body morphology traits across these distinct populations allows us to better understand the extent of natural selection in shaping organisms in their unique ecological contexts. Faculty Sponsor: Delbert Hutchison

Maggie Massey | Contaminated Communities: Activism and Identity in Libby, Montana, 11:45 a.m.

Libby, Mont., is contaminated with asbestos. The W.R. Grace company subjected miners to this deadly mineral for decades without their consent. As a result, miners, their families, and many residents of Libby are fatally ill. This extraordinary negligence could have resulted in a massive social movement – a fight for occupational and environmental justice – but public response was fragmented and controversial. My presentation examines the factors that motivate individuals to speak out against injustice and become involved in activism. Why do disastrous environmental activities and human health catastrophes often go uncontested? What does it really mean to be an activist in these circumstances? Faculty Sponsor: Jesse Abrams

Service Trips

Kimball Theatre

Beverly Li, moderator

Ali Murray, Meghan Browne, Andrew Patel, Rose Haag, Beverly Li | Whitman Service Trips, 10:45 a.m.

Through direct service and reflection, service trips participants expand their education and research beyond campus to engage in communities across the country. This spring break, 53 Whitman students and staff participated in five trips, studying and experiencing a wide variety of issues. Ali Murray: Hurricane Katrina relief effort, New Orleans. Participants studied the impact of Hurricane Katrina on the local community. Meghan Browne: food and hunger, Portland, Ore. Participants studies issues of food justice and participated in sustainable farming. Andrew Patel: sustainability, Portland, Ore. Participants examined services and initiatives surrounding sustainability and environmental justice. Rose Haag: community-building through the arts, Issaquah, Wash. Participants studied the impact and importance of the arts in communities. Beverly Li: refugee resettlement, Seattle. Participants studied the processes and issues that newly arrived refuges face upon their arrival in the U.S. Sponsor: Kelsie Butts

Gender, Cruelty and Incarceration

Reid GO2

Nina Neff-Mallon, moderator

Elizabeth Reetz | Transgressions of Gender: Women in Argentine Concentration Camps (1976-1983), 10:45 a.m.

Between 1976 and 1983, the Argentine government, a conservative military dictatorship, systematically imprisoned and murdered an estimated 30,000 leftist "subversives." Broadly speaking, my presentation analyzes the relationship between gender, torture, and the re-education of female prisoners in concentration camps. Although a significant percentage of the prisoners were women, there has been little scholarship concerning gendered aspects of their imprisonment. Within the conservative military dictatorship, however, these women were doubly subversive: They participated in leftist organizations and transgressed their traditional family roles by becoming involved in politics in the first place. In addition to killing subversives, some camps instituted a "recuperation process" meant to re-educate prisoners, making them "decent" for Argentine society. Women and men alike suffered torture and re-education. My presentation will maintain that women suffered differently from their male comrades. Faculty Sponsor: Julie Charlip

Amanda Lane | "He's Not Here, So Hopefully He Is": What Role Does Religion Play in the Coping Mechanisms of Prison Wives?, 11 a.m.

How does religion function as a coping mechanism for wives and girlfriends of incarcerated men? I propose that there are dual uses of religion as a support mechanism when a woman's spouse is incarcerated. She may either initiate or maintain previous levels of religiosity, because doing so provides a framework of logic in what is largely an anomic situation for her, or she may reject religion as a consequence of her rejecting religious morality more generally. I hypothesize that "prison wives" rarely reject and instead strongly embrace religion as a particularly accessible and potentially powerful way to cope with the incarceration of their significant others. Overall, I expect the results of my study will reveal the power of religion in dealing with this anomic situation, even if it might seem that the incarceration of a loved one would have the potential to disarm religious ideals of faith and goodwill. Faculty Sponsor: Keith Farrington

Grace Davis | The Use of Prison Nurseries to Increase Self-Efficacy of Incarcerated Mothers, 11:15 a.m.

There is no national policy that addresses the futures of mothers who give birth while incarcerated. The overwhelming majority of these women must be separated from their infants immediately postpartum. A few prisons in the United States have established prison nurseries in which women may keep and actively raise their children for a limited time. My presentation focuses on a qualitative case study of one of these nurseries, the Residential Parenting Program at Washington Corrections Center for Women. I maintain that prison nursery programs not only aid in increasing rates of infant and parent secure attachment but also help women gain a sense of self-efficacy, self-confidence, self-control, and positive identity formation. I also suggest that these learned skills could be generalized to aid successful reintroduction into the greater community post-incarceration, and offer suggestions for further development surrounding community reintegration. Faculty Sponsor: Keith Farrington

Nina Neff-Mallon | The Impossibility of Cruelty, 11:30 a.m.

My presentation examines a certain form of extreme cruelty in which the perpetrator attempts to get the victim to "consent" to her own violation. In the first part of the presentation, I argue that such actions are conceptually self-defeating, in that they require the perpetrator to recognize a kind of moral value of the victim even while purporting to deny it. In the second part of my discussion, I propose a way that understanding the self-contradiction of those actions can provide a way for both victims and perpetrators to regain themselves. Faculty Sponsor: Patrick Frierson

Modern Political Economies

Sherwood 222

John-Henry Heckendorn, moderator

Sebastian Jay | Prosperity Through Internationalization: Post-Soviet Economic Development in Estonia and Georgia, 10:45 a.m.

For former Soviet states, a major policy question since the USSR's collapse has been how best to convert from a command economy to an efficient mixed market economy whose economic and political institutions suit the conventions of the global economic order. Through a comparison of Estonia and Georgia, I demonstrate why it is important that a state in economic transition internationalize – or mesh with international norms of economic and governmental policy – in order to maximize its development gains. First, I show that Estonia has internationalized its economic development to a greater extent than Georgia. Then, through an analysis of Georgia's domestic governance issues, I outline the political obstacles that Georgia has faced vis-a-vis internationalization. Finally, I argue that Estonia's internationalization of economic development has been crucial to its prosperity, while Georgia's failure to internationalize to the same extent has hampered its economic transition. Faculty Sponsor: Bruce Magnusson

Alexander Brott | Amenities Migration in Cotacachi, Ecuador: A Testing Ground for Innovative Responses to North-to-South Immigration, 11 a.m.

Amenities migration – relocation to afford higher living standards – has wrought drastic changes in communities worldwide. A case in point is Cotacachi, Ecuador. Over the past six years North American retirees have flooded the town, with predictable outcomes. Rapid increases in land and home prices, a shift from sustainable rural production to an immigrant services economy, and a broad lack of integration owing to the absence of communication have increased social and economic inequality. In my presentation I outline unconventional solutions to this influx, as previous mitigation tactics, mainly land ownership restrictions, have been ineffective. My research suggests that, despite inevitable increases in land values under these conditions, increased integration via Spanish language acquisition will lessen negative social and political changes. Communication is critical to linking the values and priorities of these disparate groups, thereby permitting development strategies concurrent with the goals of all community members. Faculty Sponsor: Aaron Bobrow-Strain

Lauren McCullough | The Apple-Foxconn Debacle: Contextualizing Responses to Labor Abuse, 11:15 a.m.

Earlier this year, Americans were shocked after hearing about worker suicides, explosions, and protests at manufacturing plants in China. Owned by a multi-national Taiwanese company, Foxconn, these factories assemble nearly 40 percent of the consumer electronics in the world. Though Foxconn operates in three continents and supplies a number of buyers, Apple and China were primarily targeted in the media. While newspapers, consumer groups, and television pundits have attempted to understand the suicides and scandal, I flip the lens by asking: Why exactly are we so fixated on this? What does our interest in the Foxconn-Apple situation say about our current economic and political state of affairs? I explore these questions by examining media and other sources. Ultimately, I argue that our reactions to the Foxconn-Apple situation are more indicative of the American social climate than they are about the realities of labor abuse. Faculty Sponsor: Jeanne Morefield

Charles Weems | Volatility and the Culture of Commodities Speculation, 11:30 a.m.

A transformation occurred on the floors of the world's largest commodities markets after the sub-prime mortgage collapse of 2007: Suddenly everyone wanted to buy and trade "hard" goods. Over the past decade the value of commodities traded has increased from $3 billion to $156 billion. Grain markets remain volatile, causing food shortages around the world. My presentation examines the culture of investment banks that became involved in commodities trading after the mortgage crisis compared to "traditional" commodities traders using financial literature and news reporting. Ultimately, I use the idea of institutional culture to explain why commodities traders were able to be self-interested investors and yet not cause the same market volatility that has occurred with the entrance of hedge funds and index speculators into the commodities market. Faculty Sponsor: Jeanne Morefield

John-Henry Heckendorn | Currency, Identity, and Power; the Euro Debate, 11:45 a.m.

Many people see money and power as related. The kind of power typically associated with money comes from purchasing power and material gain. Less familiar is the idea that money implicates political as well as economic power. In my presentation I use Britain's euro-pound debate to stir a discussion of how modern states exercise and retain power. I argue that currency powerfully reproduces the nation state, and that factors ranging from the relative value of that currency to the specific symbols and pictures shown on a currency note all serve to distinguish national space from the rest of the global community. The state uses currency to resist alternative power structures and enact a subtle subordination of social infrastructure. Understanding the way we argue about money enables us to understand how the state manipulates money as a tool of identity formation in order to maintain its authority. Faculty Sponsor: Jeanne Morefield

Photo courtesy of Megan Oost

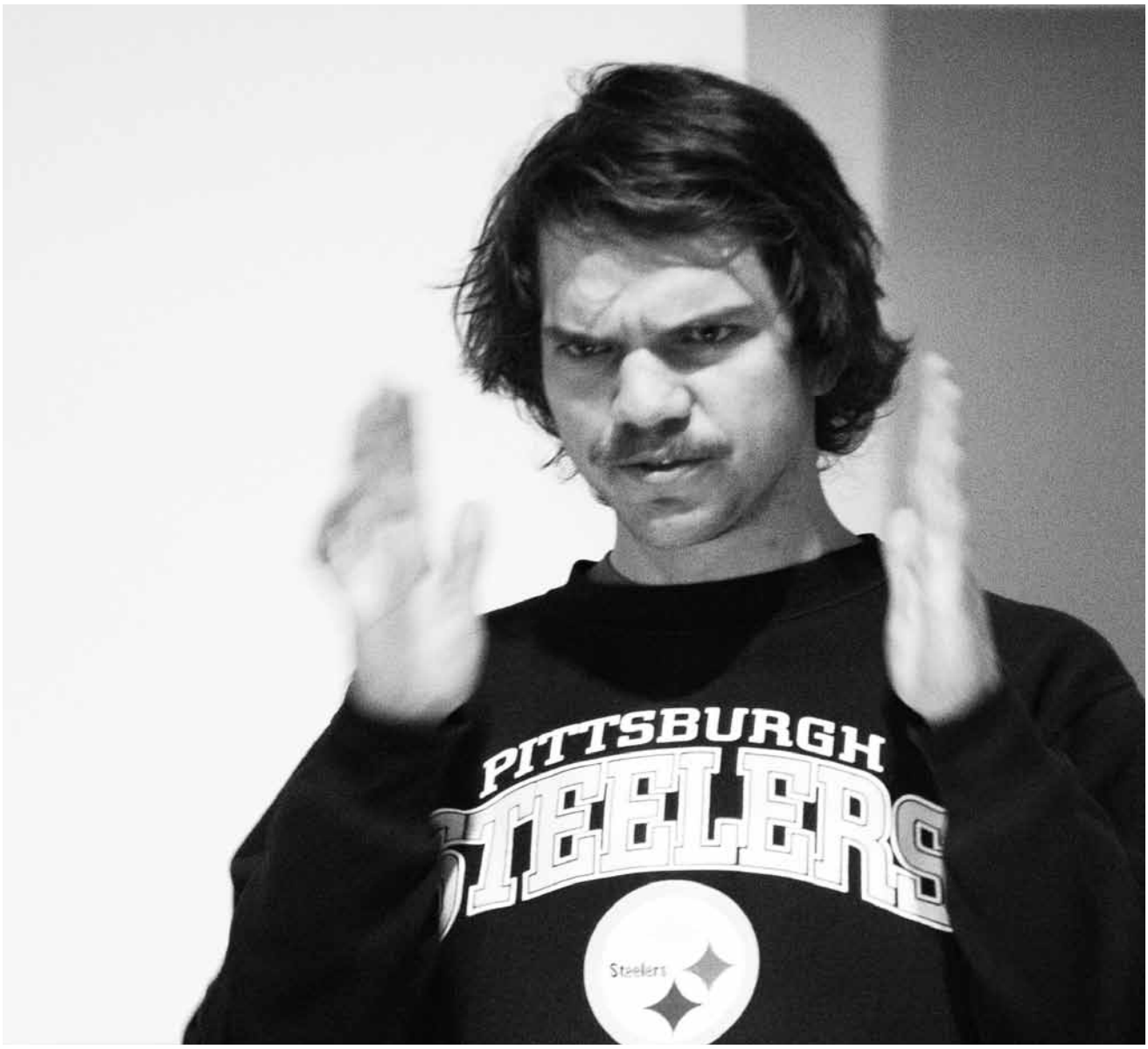
Senior Art Trip Presentation

1-2 p.m.

Fouts Center for Visual Arts Exhibition Space

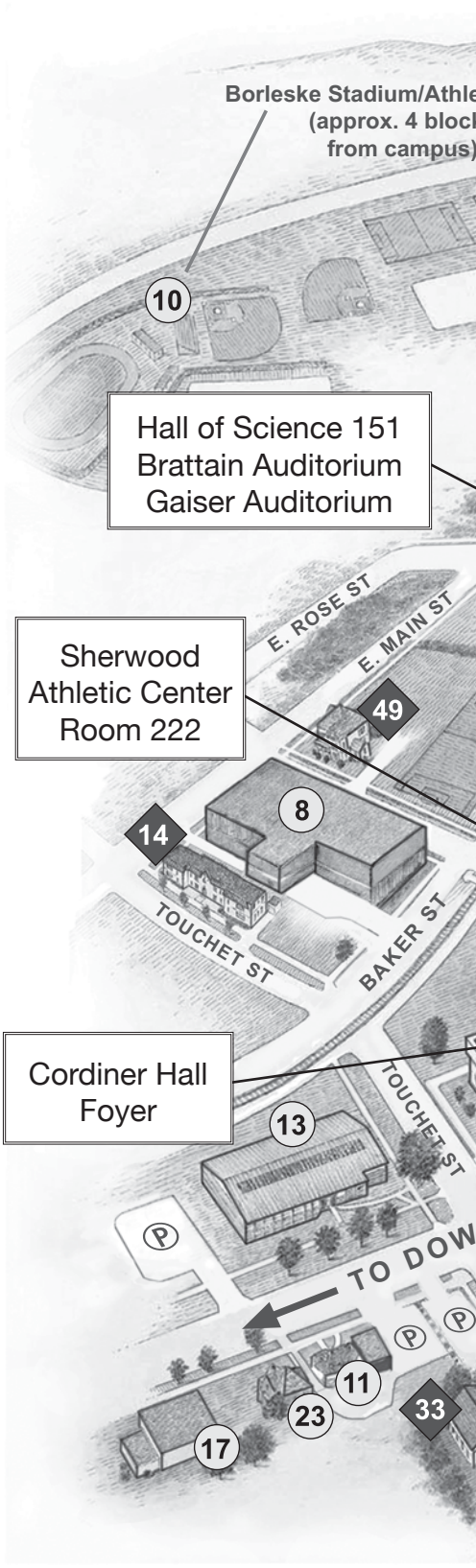
Samuel Alden, Sarah Canepa, Kelly Douglas, Binta Loos-Diallo, Hayley Mauck, Megan Oost, Julia Schneider, Amanda Villaseñor, Elizabeth Wolff | Senior Art Major New York Trip Presentation

Each year, Whitman's studio art majors travel to New York for a week to visit the city's myriad museums and galleries and to glimpse a thriving art world. This year, the Art Department received a Teagle Grant to assess the New York trip in an exciting, creative way. The senior art majors used this grant to create a gallery show exploring the impact of the New York trip on their artistic sensibilities and practice. Nine seniors discuss the pieces they created for the exhibit and reflect on their experiences in New York. The panelists are Sam Alden, Sarah Canepa, Kelly Douglas, Binta Loos-Diallo, Hayley Mauck, Megan Oost, Julia Schneider, Amanda Villaseñor, and Elizabeth Wolff. Faculty Sponsor: Justin Lincoln

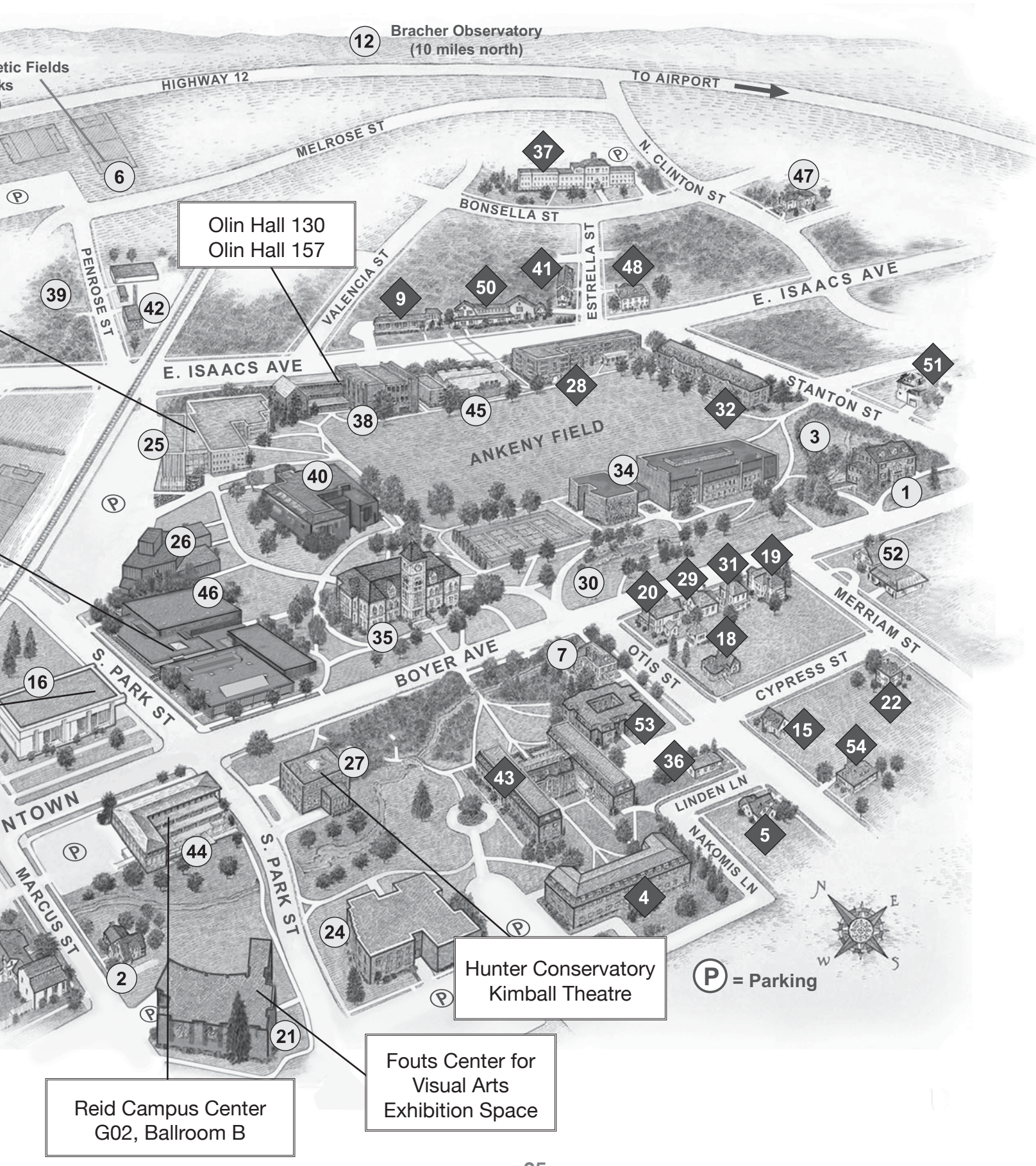

PITTSBURGH
Steelers

venues

1 Admission and Financial Aid (Penrose House)
2 Alumni House
3 Amphitheatre
4 Anderson Hall (residence hall)
5 Asian Studies House (interest house)
6 Athletic Complex (outdoor fields)
7 Baker Faculty Center
8 Baker Ferguson Fitness Center/Harvey Pool
9 Beta Theta Pi (fraternity house)
10 Borleske Stadium
11 Boyer House
12 Bracher Observatory (astronomy facility)
13 Bratton Tennis Center
14 College House (residence hall)
15 Community Service House (interest house)
16 Cordiner Hall (auditorium)
17 Dance Studio
18 Das Deutsche Haus (interest house)
19 Environmental House (interest house)
20 Fine Arts House (interest house)
21 Fouts Center for Visual Arts
22 Global Awareness House (interest house)
23 Glover Alston Center (intercultural resources, programs)
24 Hall of Music (includes Chism Recital Hall)
25 Hall of Science (includes Brattain and Gaiser auditoriums)
26 Harper Joy Theatre (includes Alexander and Freimann stages)
27 Hunter Conservatory (rhetoric and film studies/debate, Kimball Theatre)
28 Jewett Hall (residence/dining hall)
29 La Casa Hispaña (interest house)
30 Lakum Duckum
31 La Maison Française (interest house)
32 Lyman House (residence/dining hall)
33 Marcus House (residence hall)
34 Maxey Hall (social sciences)
35 Memorial Building (administration)
36 Multi-Ethnic Center for Cultural Awareness (MECCA/interest house)
37 North Hall (residence hall)
38 Olin Hall (humanities and mathematics, technology services)
39 Organic Garden
40 Penrose Library
41 Phi Delta Theta (fraternity house)
42 Physical Plant Services
43 Prentiss Hall (residence/dining hall)
44 Reid Campus Center (student services/café)
45 Sheehan Art Gallery
46 Sherwood Athletic Center (climbing wall)
47 Sherwood House (president's residence)
48 Sigma Chi (fraternity house)
49 Tamarac House (residence hall)
50 Tau Kappa Epsilon (fraternity house)
51 Tekisuijuku (interest house)
52 Welty Center (counseling and health services)
53 William O. Douglas Hall (residence hall)
54 Writing House (interest house)



Whitman College



posters

1-2 p.m.
Cordiner Hall

Ana Aguilar | Weighing the Issue: When Is It Okay to Express Positive Attitudes About One's Body?

"Fat talk" is a term used to describe women's common use of negative talk about their bodies. Recent research shows that participants liked a weight "target" most when she had a positive attitude about her body. This finding may suggest that there is an acceptable alternative to fat talk for women. Our research seeks to determine if it is socially acceptable for women to share positive attitudes about their body even if their weight does not conform to the cultural ideal. We created vignettes depicting overweight or average weight targets engaging in negative or positive body talk and developed a survey for participants to rate the likeability of the target. We hypothesize that participants would like average weight women more if they engaged in positive body talk, but would like overweight women less if they did the same because women are expected to try to attain culturally ideal thinness. Co-presenter: Claire Westcott. Faculty Sponsor: Brooke Vick

Lillian Bailey | The Effects of Socioeconomic Status on Infant Tool Use

Tool use can be considered an early form of problem-solving, in that it requires infants to perceive a problem, then plan and execute a motor solution. Children of low socioeconomic status display cognitive delays, but little is known about when these deficiencies begin or how they relate to tool use. Our study explored the development of tool use

and how it differs between high and low SES infants. We presented four of five different tools (a hammer, shovel, brush, rattle, spoon) to high and low SES infants at 9 and 12 months. We varied the orientation of the handle so that the infant would have to adapt her actions to grip the tool correctly. The grips of high SES infants indicated more sophisticated problem-solving. Continued research in this area can help clarify the nature of these patterns and may be essential in closing the gap between socioeconomic groups. Co-presenters: Sarah Stanger, Nick Tacke, Helen Jenne Faculty Sponsor: Melissa Clearfield

Allison Beemer | Minimizing the Entropy of Z^2 Actions on Toral Automorphisms

Ergodic theory is the study of the behavior of dynamical systems over time. In our case, we consider how ergodic a mapping from the torus to itself is – in other words, its entropy – by looking at the mapping's corresponding 3x3 matrix. Take A, a 3x3 matrix that has several convenient properties, and B, another matrix, whose selection depends on our choice of A. We seek to minimize the entropy of the mapping A^nB^m, where n and m are integers, which we will measure using the sum of its positive Lyapunov exponents. Amazingly, this entropy is related to the area of a carefully constructed, corresponding hexagon in the n-m plane. If we fix A and vary B, we find that there exists a B that minimizes the entropy of A^nB^m. This research was funded by the National Science Foundation through the REU in mathematics at the Pennsylvania State University. Faculty Sponsor: Barry Balof

Madeleine Coleman | Visualization of the Tripartite Synapse

Neurons make connections in the brain that, among other things, allow us to form memories, write papers, and speak foreign languages. These connections, called synapses, relay information at astonishing speeds and help us develop into highly functioning human beings. However, this higher level processing would not be possible without the support of non-neuronal cells called glia. Perhaps the most interesting of the glia cell types are astrocytes, which not only have a role in the homeostasis of the brain, but also in mediating synapses. The newly-coined term "tripartite synapse" visualizes this connection as a meeting of three cells: the pre-synaptic and post-synaptic neurons and an astrocyte. This way of thinking puts the astrocyte right in the thick of all information processing. In order to understand how important the astrocyte is in this synapse, this project localizes synapses and visualizes the structural relationship between the neurons and glia. Co-presenter: Olivia Ware. Faculty Sponsor: Ginger Withers

Laura Coulson | Boron Clusters: Dimerization of the $CB_{11}H_{12}$ Anion

Boron is the only element besides carbon that forms long chains. A class of compounds called carboranes, which consist of clusters of carbon and boron, make some of the strongest known acids. Research using carboranes is also being done towards a new cancer treatment called boron neutron capture therapy. The molecule that is of interest is 1-carba-closo-dodecaborate^{1-}, a 12-vertex molecule, 11 of which are borons with one carbon. This anion, when dimerized, could play a role in catalyzing useful reactions, and would be a novel compound that has not been synthesized before. Faculty Sponsor: Marcus Juhasz

Margaret Du Bray | Site Fidelity among Grey Whales (Eschrichtius robustus) as Determined by Photographic Identification in Bahia Magdalena, Baja California Sur, Mexico

Grey whales (Eschrichtius robustus) are a migratory species that spend their summers in the feeding grounds of the Arctic Ocean and winter in the Pacific Ocean. The winter season is spent calving and rearing young. During my studies in Bahia Magdalena, a common calving ground in Baja California Sur, Mexico, I studied the site fidelity of grey whales. Using digital photography from 8-9m pangas, we sighted and photographed whales, and noted location. By comparing the photographs from 2011 to photographs from seven previous years, I attempted to determine whether specific whales return to Bahia Magdalena annually. Data showed that whales might return to the same area to calve. Continued, more consistent photographic documentation is necessary to determine with more certainty whether grey whales consistently return to certain calving grounds. Faculty Sponsor: Paul Yancey

Nina Estep | Infralabial Outlets Involved in Communication and Rubbing Behaviors of Psammophis Snakes

Sand Snakes (genus Psammophis) are highly social, territorial snakes that utilize secretions from different glands in their bodies to communicate with their fellows. My research will be the first to take a morphological approach to understanding the mechanisms of their complex social system. Psammophis possess infralabial outlets under the jaw

on their lower lip scales that they have been seen to use in distinctive rubbing behaviors. Observations and some behavioral studies are currently the only evidence supporting ILOs as exocrine glands. Using electron microscope techniques, histological sections and CT scans to obtain images of the structure's internal and external morphology, I will more accurately determine the function of the ILOs. Research supported by a grant from the Microscopy Society of America. Faculty Sponsor: Kate Jackson

Taylor Folt | Biofilm Inhibition & Antibiotic Resistance of Pseudomonas aeruginosa

The potential of microbial biofilms to cause serious chronic and acute infections in humans is a daunting reality, brought to scientific attention in the past 20 years by the bacterium Pseudomonas aeruginosa. For the purposes of drug design and therapy, it would be beneficial to the medical community to understand 1) what causes the bacteria to either swarm or adhere to a surface (as in biofilms), and 2) how particular genes could be tampered with to cause the bacteria to remain vulnerable: when they are swarming and not protected in a biofilm, rendering them sensitive to antibiotics or disinfection. This study focused on the flagella of P. aeruginosa and the four proteins most responsible for motility (and thus swarming). P. aeruginosa mutants were created in which portions of two of these proteins were swapped, to see if these mutants resembled another mutant strain notorious for forming dense biofilms. Faculty Sponsor: Kendra Golden

Krista Garrett | Understanding Nutrient Fluxes in a Restored Salt Pond

In the southern part of San Francisco Bay, large tracts of wetlands have been enclosed by dikes and used as shallow salt production ponds since the 1800s. In 2003, the California Department of Fish and Game and the U.S. Fish and Wildlife Service bought 15,100 acres of salt ponds for wildlife restoration. Concentrations of phosphorus and nitrogen in these ponds affect primary productivity and the likelihood of cyanobacteria blooms. In order to understand the production, consumption, and tidal transfer of nutrients, we measured the concentrations and fluxes of phosphorus and nitrogen through Pond A3W of the Alviso Salt Pond Complex. We determined that the fluxes of these nutrients through the pond are tidally controlled. The results of this study will augment ongoing research by the U.S. Geological Survey to assist in restoring the historic wetlands of San Francisco Bay. Faculty Sponsor: Nicholas Bader

Whitney Griggs | Kinematics of Natural-Environment Coordinated Eye-Head Movements in Humans During Large-Amplitude, Visually Guided and Memory Tasks

Gaze shifts move one's line of sight to different targets; large, rapid gaze shifts require combined eye and head movements that are carefully coordinated by the brain. Previous research has revealed some consistencies in eye-head coordination, but has mostly been done in lab settings using memory-guided tasks (gaze shifts to memorized target location), rather than visually guided tasks – a more common behavior. We used a prototype device for measuring human eye and head movements (EyeSeeCam), to examine various memory- and visually-guided gaze shifts in lab and natural settings. In both settings, we found differences in eye-head coordination between memory- and visually-guided gaze shifts, suggesting that the tasks are accomplished by different neural programming. Because gaze shift characteristics can vary in patients with neurological disorders (e.g., Huntington's disease), this research may lead to improved diagnosis and treatment. Funded by the M.J. Murdock Charitable Trust and Whitman College. Faculty Sponsor: Thomas Knight

Mzuri Handlin | Desorption Kinetics for Chlorinated Organic Pollutants in Systems Containing Both Contaminated and Uncontaminated Sediment

During dredging operations riverbed sediment becomes resuspended in water, at which point pollutants trapped in this sediment can be released into the ecosystem. This depends on two processes: desorption of pollutants off of sediment and into water, and adsorption from water back onto sediment. The relative rates at which these two processes occur determines which one dominates. In the past, only desorption rates have been used to model pollutant release, but this method has proven to be highly inaccurate. In this investigation, we seek to experimentally determine both adsorption and desorption rate constants in order to more accurately model the kinetics of pesticide sorption during these dredging operations. Adsorption trials have shown that adsorption rates increase linearly with the amount of clean sediment suspended in the water. Desorption trials are not complete, but theoretical models predict an inverse relationship, with adsorption dominating the system overall. Faculty Sponsor: Frank Dunnivant

Dandi Huang | Survey of Australian Lungfish Genome

Scientists have long identified the Lungfish as "living fossils," the ancestor to tetrapods that emerged from the oceans about 360 million years ago to evolve into the various four limbed vertebrate animals living on Earth today. This project uses the Australian Lungfish, Neoceratodus forsteri to identify the proportions of coding sequences and non-coding DNA sequences and assess whether the Lungfish gene number scales with its genome size. DNA inserts from BACs (Bacterial Artificial Chromosomes) were isolated, subcloned, sequenced, and analyzed through Basic Local Alignment Search Tool. I will describe the results of the BLAST searches for some of these DNA inserts and discuss the presence of genes and transposable elements within the lungfish genome. Faculty Sponsor: James Russo

Jack Lazar | The Contributions of SOS Health Services to Marginalized Residents of the Walla Walla Valley

Fritz Siegert, Grace Davis and I examine how SOS Health Services of Walla Walla reduces the financial burden that uninsured patients put on the local healthcare system. The SOS Clinic is a free, volunteer-run health facility for uninsured and marginalized people funded by donations and grants. Our research complements work done last year on the regional and social demographics that the clinic serves. We gathered additional data regarding patient demographics, where they would receive care should the clinic not exist, what kinds of care the clinic provides, and what costs it absorbs. To this information we attach insurance coverage codes to determine how much money the SOS Clinic saves the healthcare network every year. Our goal is to provide the clinic with empirical data and analysis that demonstrates its need and value to the greater Walla Walla community. Co-presenters: Thomas Siegert, Grace Davis. Faculty Sponsor: Jason Pribilsky

Ngoc Linh Le | Mitochondria Density Within Purkinje Cells: Contribution to Variability Seen in Fetal Alcohol Syndrome

The developing fetus is particularly vulnerable to exposure to exogenous agents, as this is a time of robust cell differentiation and growth. Fetal alcohol syndrome and alcohol-related birth defects can vary in severity when the developing fetus is exposed to alcohol, depending on factors such as genetic susceptibility, alcohol metabolism rates, timing and pattern of alcohol exposure, and peak blood alcohol levels. Effects on brain development are also variable, but some parts of the cerebellum are particularly vulnerable. This research quantifies the mitochondria density of Purkinje cells, principle neurons of the cerebellum, between two different lobules of the normal developing rat cerebellum, with one lobule more vulnerable to alcohol exposure than the other. High mitochondria density relates to higher energy output and may confer protection against the teratogenic effects of alcohol. Differences in density may contribute to the spatial variability observed in neuronal cell sensitivity when exposed to alcohol. Faculty Sponsor: Ginger Withers

Hannah Lewis | Insulin Signaling in the Ketogenic Diet: A Potential Mechanism of Seizure Prevention

The ketogenic diet follows a strict 4:1 ratio of fats to carbohydrates and proteins, which induces ketosis, shifting the body away from glucose metabolism. KD successfully treats patients with intractable epilepsy. Although many studies have been conducted on KD, its mechanism of efficacy remains unknown. Insulin is a hormone involved in glucose metabolism and has a role in brain regions associated with seizure generation, thus it seems likely that KD modifies neural insulin pathways. In this study we use immunocytochemistry to label the insulin receptor in brains of rats fed either control or KD chow. Thus far, it appears that the insulin receptor is downregulated in KD rats. This indicates that insulin signaling changes with KD treatment, which may influence seizure generation and the efficacy of the diet. This research was conducted at Whitman College with Dr. Leena Knight and funded by an Howard Hughes Medical Institute grant. Co-presenter: Calvin Atkins. Faculty Sponsor: Leena Knight

McKenzie Momany | The Role of Macrophages and Interleukin-33 in Pulmonary Inflammatory Responses

Macrophages in the lung are the first line of defense against foreign particulates, and play an important role in the subsequent immune response. Upon exposure to silica, a Th2 immune response occurs and can cause a variety of symptoms, including inflammation in the lung and fibrosis. The Th2 immune response involves the presence of certain proteins such as IL-33 and a specific kind of macrophage called the alternatively-activated macrophage (M2a). Through in vitro and in vivo methods, we looked at the M2a as a marker and key component in pulmonary fibro-

sis. This research explores the mechanisms by which particle-induced pulmonary fibrosis occurs. This project was funded by the National Institute of Environmental Health Sciences, and was completed at the University of Montana through the Center for Environmental Health Sciences. Faculty Sponsor: Daniel Vernon

Nina Neff-Mallon | Lockean Poetics

In this creative philosophy poster Hanne Jensen, Merrett Krahn, Laura Holford, and I analyze Robert Frost's "The Road Not Taken" in terms of John Locke's categories of knowledge. The poster helps the viewer to read "The Road Not Taken" as a meditation on the limits of knowledge, the temptation to enter into speculation, and the necessity of choice and action in the face of uncertainty. Faculty Sponsor: Patrick Frierson

Katie Miller | Reasoning About Other People's Beliefs: A Comparison Between Monolinguals, Early-Onset Bilinguals, and Late-Onset Bilinguals

Children acquire the ability to reason about other people's beliefs, or "theory of mind," around the age of 3. While theory of mind is well-developed in adulthood, previous research indicates that bilinguals may have an advantage over monolinguals when reasoning about other people's beliefs. Enhanced theory of mind is believed to be a result of strengthened inhibitory control. Our experiment aims to determine whether early-onset bilinguals have more advanced inhibitory control than late-onset bilinguals due to their longer exposure to a second language. We hypothesize that early-onset bilinguals will be able to reason more accurately about other people's beliefs than late-onset bilinguals, even in the presence of distracting information that ordinarily interferes with reasoning skills. Further, we predict that monolinguals will perform no better than late-onset bilinguals because they do not have experience switching between languages, and thus possibly weaker inhibitory control. Co-presenters: Ruby Glaser and Hayley Hemphill. Faculty Sponsor: Walter Herbranson

Nathan Ord | Analyzing Host-Specific Antibodies in Female to Male Bone Marrow Transplant Patients

For patients of leukemia, lymphoma, and other blood related diseases, the bone marrow transplant offers a lifesaving treatment by replacing the entire blood forming system of a patient with a healthy donor's. However, post-transplant patients may develop graft-versus-host disease, where the engrafted immune system begins attacking its new host. It has been shown that male recipients of female hematopoietic cell grafts (F->M HCT), compared with other donor/recipient gender combinations, demonstrate increased risk for both acute and chronic GVHD, but also exhibit significantly decreased risk of post-transplant relapse. We screened blood samples from 39 F->M HCT patients, 16 patients with other donor/recipient combinations, 12 healthy females, and 9 healthy males against a panel of 84 Y-chromosome derived protein and peptide fragments via IgG antibody ELISA. We demonstrate that antibodies to several Y-chromosome antigens develop more frequently in F->M transplant patients, and identify one of those targets. Faculty Sponsor: James Russo

Emma Oschrin | Bluebunch Wheatgrass Success on North- and South-Facing Slopes

Bluebunch wheatgrass used to dominate ecosystems in the interior Northwest but is now rare. The decline of bluebunch wheatgrass may be due in part to competition with the invasive species cheat grass, especially where soils are very dry. However, the mechanisms of this competitive effect remain uncertain. I seek to identify demographic patterns in bluebunch wheatgrass that may help determine where it is successful. I compare distribution of plant sizes and of reproductive output in bluebunch wheatgrass between sites where it is rare and sites where it is common. I gathered these data at the Wallula Gap Biological Station where bluebunch wheatgrass is most common on north facing slopes and cheat grass is most abundant on drier south facing slopes. A Howard Hughes Medical Institute grant to Whitman College funded this study. Faculty Sponsor: Timothy Parker

Stephen Over | Effects of Physical Environment on Brain Cell Development

In brain development, the extracellular environment is important for organizing the pattern of neuron growth and building of circuits between neurons. Less is known about how this environment influences the positioning of non-neuronal cells, particularly glial cells, and their relationship with neurons. I manipulated neuron and astrocyte development by growing them on varied substrates either alone or together. I found that the orientation of protruding topographical markers influenced the development of these cells in reproducible patterns. Quantitative analysis was

performed by staining proteins unique to each of the two cells. An often-neglected factor in the preceding research was how different nutrient solutions (growth mediums) might also influence development. Because different growth mediums are often used to grow these cell types, it is crucial to determine the effects of each in order to tease effects of surface properties from medium influence. Ongoing experiments will test growth under these conditions as well. Faculty Sponsor: Ginger Withers

Donna Phan | An Investigation of Novel Cyanation Methods on 1-carba-closo-dodecaborate^{1-} Anion Cages

There are currently no known synthetic routes for multiple cyanations on carborane cages. Computation chemistry has shown that the conjugate acids of cyanated carborane cages have the potential to be very strong acids. Another application for carborane cages after cyanation is to be used as an intermediate for conversions to more electron withdrawing groups such as carboxylic acids or amines. Due to similar electronic properties as aromatic systems, it is possible to perform direct electrophilic substitution reactions to the cage through the use of microwave heating. 1-carba-closo-dodecaborate^{1-}anion cages were investigated as a possible precursor for these reactions. Initial reactions have shown positive indications that cyanation is possible on the cage at moderate conditions using extended periods of heating. Further study is needed to verify if product formation is replicable. Faculty Sponsor: Marcus Juhasz

Katie Radosevic | The Effects of Local Flower Loss on Specialized Pollen Foragers

Most flowering plants rely on insects as pollinators, and many insects, particularly bees, depend on those flowers for food. One solitary bee species, Chelostoma rapunculi, specializes on Campanula bell flowers for the pollen and nectar to provision its nests and feed its larvae. On the island of Öland, in southeastern Sweden, these bell flowers grow along roadsides and fields with other plants, which are periodically mowed to remove "weeds" or to generate parking space for tourists. This study examines how removing the bell flowers affects the foraging activity of C. rapunculi, determined by the frequency of the bees returning to their nests. Observations were made at an experimental nesting site where resident Campanula plants were supplemented with cut flowers that were later removed to simulate mowing, and were compared to a control nesting site in a field with Campanula that was not mowed. This project was funded by Whitman College. Faculty Sponsor: Heidi E. M. Dobson

Angela Raso | Determining the Presence of Dense Non-Aqueous Phase Liquids in River Sediments

At high concentrations hydrophobic pollutants can be present in two distinct forms. The first of these forms is when the pollutant is sorbed to a sediment particle. The second form that high concentration pollutants exist in is when they form small droplets of pure compound that mix in with the sediment. The first has been extensively researched. When chlorinated pollutants take on the second form they are known as Dense Non-Aqueous Phase Liquids. Very little research has been conducted on the release of DNAPL pollutants-sediment mixtures into the surrounding water, possibly because there is no simple way to test for the presence of DNAPLs. We are developing an easy procedure for measuring the presence of DNAPLs based on the relative release rates of truly dissolved pollutants versus those from DNAPLs mixtures. Faculty Sponsor: Frank Dunnivant

Aaron Rosenbaum | Halogenated Carboranes: Synthetic Steps to Dendritic Boron Molecules

Carboranes are the starting point for synthetic pathways leading to complex and useful molecules, such as weakly coordinating anions, cancer drugs, and molecular building blocks. The parent anion carba-closo-dodecaborate has been shown to undergo common reactions like halogenation, organometallic coupling, and alkylation. However, by using microwave irradiation as the heating source, these reactions have been completed in less time and with greater yields. This method of MWI has allowed for facile halogenation, and subsequent kumada coupling reactions to synthesize large functionalized compounds. Such compounds could be useful as intermediates or precursors to dendritic cancer drugs with high boron concentrations, x-ray contrast agents, or substituted benzene rings and polymers. Faculty Sponsor: Marcus Juhasz

Elizabeth Schiller | Refining Meyer's Minority Stress Theory: Does Personality Play a Role in Predicting Mental Health Outcomes for LGB Individuals?

We seek to explain the role of mediating factors in the relationship between sexual orientation stigma and mental health outcomes in a sample of lesbian, gay, and bisexual individuals. We measured the effect of Big Five personality factors in this stigma-mental health relationship. Including personality traits in the model allows us to evaluate the validity of the current models and extend them. If all variables examined are still able to predict mental health outcomes in the LGB population independently with the addition of personality, this will suggest that the validity of the current models (Hatzenbuehler, 2009; Meyer, 2003) is not related to personality factors. Participants (N = 485) completed a series of online surveys about stigma, psychological well-being, and possible mediators including personality, ethnic stigma, internalized homophobia, guilt and shame, avoidant coping, and rejection sensitivity. Co-presenter is Joshua Goodman. Funded by the Perry Summer Research Award. Faculty Sponsor: Pavel Blagov

Samuel Schonfeld | Observations of the Neupert Effect with SDO, RHESSI and GOES

As the dominant energy source in the solar system, the Sun can have dramatic effects on life on Earth. Solar flares and coronal mass ejections emit huge amounts of energy (in the form of light and ionized particles) that can damage global infrastructure and poses serious risk to humans in space. In order to better guard against the negative effects of solar eruptions it is important to understand their mechanisms and structures. Using data from solar observing satellites I analyzed the extreme ultraviolet and x-ray light from mid and high energy flares to investigate the Neupert Effect, a correlation between soft and hard x-rays emitted during flare onset. Additionally, I examined the extreme ultraviolet emissions during the same time to further evaluate the energy distribution of the flares. I found that the fraction of events displaying Neupert Effect behavior agreed with previous results. Faculty Sponsor: Nathaniel Paust

Thomas Siegert | Thermal Contraction as a Metric for the Efficacy of Inert Oils as External Cryoprotecants in Protein Crystallography

Biochemistry, molecular biology, and many other disciplines depend on accurate structural models of many different kinds of macromolecules – proteins chief among them. As these disciplines advance, so too do protein crystallography techniques need to advance in order to render the best possible structural analysis of target proteins. Cryocooling has become an industry standard for protein crystallography and regularly requires the use of external and internal "cryoprotectants" in order to preserve the integrity of crystal samples at lower temperatures. However, the selection of cryoprotectants still remains largely more of an art than a science. Over the course of our research, we studied using thermal contraction values as a possible way to measure the efficacy of different hydrocarbon-based oils as external cryoprotectants for protein crystallography. This research was made possible by an AREA grant from the National Institute of Health. Co-presenter: Geoffry Burks. Faculty Sponsor: Douglas Juers

Ryan Smith | The Role of Sodium Chloride Transport in Kidneys and Blood Pressure

The mammalian kidney serves as a homeostatic organ regulating electrolytes, acid-base balance, and blood pressure. Many new discoveries have led to assigning functional properties of segments in the nephron, or tubes that coordinate salt and other ions and water balance in kidneys, and to better understand the molecular mechanisms of their physiological function. The distal convoluted tubule segment plays an important role in blood pressure as a key site for sodium chloride transport via sodium chloride transporters that move these ions in this segment. This project aims to further understand the mechanisms behind how changes in the activity of the transporter occur, namely, through both an increase in NCC per cell and of the number of cells in the DCT, and subsequently how it influences high blood pressure. This project was supported by Alicia McDonough and her lab at the Keck School of Medicine of USC. Faculty Sponsor: Paul Yancey

Stephanie Steiner | Design of Potential Anti-Cancer Drugs

The human body uses a specific pathway to break down molecules it no longer needs. The 20S proteasome is a large protein complex that breaks down proteins and peptides that have been tagged by the cell for degradation. The proteasome has also been associated with cancer growth and thus is a target for anti-cancer drugs. The natural product and fungal metabolite TMC-95 was found to inhibit the function of the proteasome, preventing it from breaking down molecules that are essential in the suppression of cancer and could be used for medical purposes. Current drugs that

have been designed to inhibit the proteasome have severe side effects. In this research, we examine possible ways to simplify the structure of TMC-95 and simultaneously design an effective anti-cancer drug with less severe side effects than current treatments. This research was funded in part by an Abshire Research Scholar Award. Faculty Sponsor: Marion Gotz

Jordan Thomas | Carbon Cycling at the Top of the World: A Global Warming Study

The permafrost soils of the arctic hold more than 1,600 Gt of organic carbon ranging in age from modern to ancient. If this stored carbon is released as carbon dioxide, a major positive feedback could exacerbate climate change. Although many future climate models predict increasing precipitation in the arctic, we still do not know how increasing precipitation will affect the amount and rate of C lost to the atmosphere as CO^2. A long-term snow depth manipulation experiment was conducted in Thule, Greenland, in order to simulate increasing winter precipitation. We measured soil CO^2 bulk fluxes and radiocarbon concentration at the soil surface and in soil pore space under thick snowpack, intermediate snowpack, and normal snowpack. Thick snowpack resulted in higher CO^2 fluxes and soil pore space CO^2 concentrations. Older C was released late in the season throughout all plots, implying that even heretofore long-lived organic carbon may be mobilized rapidly. Faculty Sponsor: Nicholas Bader

Bradley West | Multiple Causes of Wooly Mammoth Extinction Based on Stable Isotopes of Tusks

Chemical changes in dentin layers in mammoth (Mammuthus primigenius) tusks can be used as a proxy for environmental conditions. We report stable carbon, nitrogen, and oxygen isotope compositions (∂13C, ∂15N, ∂18O), growth increment profiles, and radiocarbon ages, of four tusks from Yakutia, mainland Siberia. Carbon and nitrogen isotopes show significant intra- and inter-annual variation, implying mammoth diet changed both within and between years. Using C isotopes, we calculated that mammoth diet was nearly entirely C3 plants. The ∂18O values of the tusks were used to calculate the ∂18O value of meteoric water, which shows that the longitudinal meteoric water gradient of the Late Pleistocene was similar to the modern gradient. Combining these data with published isotope values shows that while diet varied significantly within individuals, no species-wide changes relate to extinction patterns, suggesting climate change may not have been the primary factor in mammoth extinction. Faculty Sponsor: Nicholas Bader

Stefan Wheat | How Do Tadpoles Use Chemical Cues to Assess Risk? Cue Concentration Versus Pulse Frequency

Prey often alter their phenotype in response to predator cues to reduce vulnerability at the cost of reduced growth. In aquatic systems, many taxa use chemical cues from predation events to assess per capita risk. However, questions remain regarding what aspects of these cues provide the best information about risk. Cue concentration provides information about either the number or size of prey consumed, while cue pulse frequency provides information on predation events irrespective of prey size. We conducted laboratory experiments in Panama with hatchlings of the red-eyed treefrog (Agalychnis callidryas) to quantify the effects of pulse frequency at a common total amount of cue. Increasing cue pulse frequency strongly reduced growth, even though individual pulses in high frequency treatments contained little cue. These results challenge methodology designed to control for biomass while allowing the number of prey killed to vary. Support for this research came from the National Science Foundation. Faculty Sponsor: Kate Jackson

session III

2-3:15 p.m.

blue moon/quarterlife

Olin Hall 130

Molly Esteve, moderator

Michaela Gianotti, Jonas Myers, William Whitwer, Simi Singh, Sabrina Wise, Peter Qualtere-Burcher, Zoe Ballering, Nick Michal, Evelina Miropolsky, Molly Esteve | Con[clue]sive: Post-Process Reflections (a blue moon/quarterlife Collaboration), 2 p.m.

Our presentation is a collaborative effort between blue moon and quarterlife, Whitman's two literary magazines. blue moon and quarterlife editors Molly Esteve, Nick Michal, and Evelina Miropolsky will lead a conversation about the process of creation with seven creative artists who contribute works of art, writing, and drama to Whitman's arts scene. We will discuss how these artists consider their finished work and its connection to their academic studies. How do they approach a "finished" piece? What are their inspirations and influences? How have their academic interests informed their ideas and processes and the way they perceive their own pieces of art? What type of criticism do they seek? To supplement the discussion, we will provide on the day of the conference a small publication that includes artistic responses to these questions by the participating artists. Faculty Sponsor: Gaurav Majumdar

Thought, Word and Creed

Olin Hall 157

Elizabeth Daviess, moderator

Merrett Krahn | Ruled By Fear, Consumed By Doubt: The Futility of Descartes' "Meditations on First Philosophy," 2 p.m.

In the beginning of his "Meditations on First Philosophy," Descartes expresses frustration and doubt, and acknowledges a lack of certainty or truth about even the most basic premises. He realizes that "I had to raze everything to the ground and begin again." (Descartes 40) His attempts towards this end, however, are futile. Descartes' personal commentary and emotion-driven comments embedded in the text show that humans desire a transcendental existence and crave a higher purpose but are ruled by fear and consumed with doubt, critically hobbling their pursuit. In "Meditations," Descartes' attempts to conquer his fear and doubt are futile; his progress toward discovery of what it means to be human is stymied. Descartes' failure calls the primacy of reason-based inquiry in philosophy into question and makes a strong appeal for the consideration of emotion as equally essential in discovering what it means to be human. Faculty Sponsor: Patrick Frierson

Allison Bolgiano | Truth in Doubt: Affirmation of the Intellect, 2:15 p.m.

My presentation examines the relationship between doubt and truth for two seemingly disparate authors: Rene Descartes and Joseph Conrad. Descartes' "Discourse on Method" uses radical doubt to dispel fallacies in his search for truth. Conversely, in "Heart of Darkness," Conrad uses doubt to obscure the truth. For instance, his characters doubt their ability to comprehend their surroundings. Similarly, the novel's thematic climax – "The horror! The horror!" – leaves readers with an almost impenetrable sense of ambiguity about its possible meanings. Yet it is precisely through such ambiguity that Conrad invites readers into the active position of determining the novel's themes. Both Descartes and Conrad are ultimately intent on affirming the power of the human intellect and exhorting their readers to engage in the search for truth. Faculty Sponsor: Jennifer Mouat

Elizabeth Hambleton | Pinokio Estas Vera Knabo, 2:30 p.m.

Esperanto was invented in the 1880s to foster world peace by bridging cultural and communication barriers with a neutral universal language. Some linguists classify Esperanto as an invented language impractical for daily use because it lacks the ambiguity and redundancy typical of "ethnic" languages. Other linguists and Esperantists argue that it acts just like a natural language, complete with its own culture, which sets it apart from other invented languages. Esperanto boasts a fascinating corpus of literature, music and an anthem that binds Esperantists together like a nation. The brotherly interactions among Esperantists of all backgrounds cross political and geographical boundaries and are characterized by specialized manners and symbols. There is variation in the precise mannerisms of Esperantists throughout the world. At the same time Esperantists observe the equivalent of a coming-of-age practice that unifies the group across the globe: attending one's first conference. Faculty Sponsor: Charles McKhann

Jordan Brown | Language and Iconicity: Reanalyzing Structuralism from the Perspective of Signed Language Linguistics, 2:45 p.m.

Structuralism has greatly influenced the development of modern linguistics, and its formulation of the linguistic sign as fundamentally arbitrary (i.e., without inherent connection between form and meaning) is frequently cited in discussions of language origins and universals. The received wisdom has long been that iconic signs (in which there is an identifiable link between form and meaning) are a marginal phenomenon in language, unimportant to theoretical analysis. Research on signed languages, however, has demonstrated that iconicity is no less linguistically ubiquitous than arbitrariness. This apparent incongruity can be traced back to a major flaw of structuralist linguistics: the conception of language as a disembodied system, entirely separate from the human cognitive apparatus that processes it. By reexamining language in terms of cognitive processes, linguists may gain new insight into spoken and signed language structure, performance, and even poetry. Faculty Sponsor: Charles McKhann

Elizabeth Daviess | The Possibility of Ethical Responsibility Without Metaphysical Freedom, 3 p.m.

In his essay "The Mystery of Metaphysical Freedom," Peter van Inwagen demonstrates that all conceptions of causality jeopardize our freedom, concluding that in both a determined and undetermined world, we cannot be free. However, as van Inwagen says, it is intuitively clear that humans necessarily conceive of themselves as possessing free will, and despite the seeming impossibility of metaphysical freedom, the notion of free will cannot be eradicated simply by reasoning it away through philosophical discourse. The belief that one is free, van Inwagen argues, is undeniable, and not dependent on metaphysical truth. I argue that, despite the possibility that metaphysical freedom does not exist, we may still be ethically responsible because of our unassailable belief in our own freedom. Given the indisputable existence of this belief, one must conceive of oneself, and be conceived of by others, as ethically free and necessarily responsible. Faculty Sponsor: Mitchell Clearfield

Doors of Perception

Reid, Ballroom B

Michael Schier, moderator

Michael Barker, Mark Arand, Theodore Pratt | Don't Blink: Change Blindness in Pigeons and Humans, 2 p.m.

Change blindness is a phenomenon in which people remain unaware of changes to their surroundings. Its existence remains a puzzle, since it's hard to imagine what sort of benefit change blindness might impart. In an attempt to answer evolutionary questions regarding the origin of the phenomenon, we compared performance in both pigeons and humans using the "flicker paradigm," a well-established procedure for producing change blindness. Two visual displays are presented in succession with a single difference between the two images. Participants must indicate the location of the change. Most experiments with humans show that identification of the change is considerably more difficult if a temporal delay exists between presentations of the two images. We systematically manipulated the interval between images to define the range of conditions that reliably produce change blindness. We expect to find that change blindness only occurs if the inter-stimulus interval is greater than a threshold value. Faculty Sponsor: Walter Herbranson

Shanglun Wang | Humans Versus Pigeons: Weighted Monty Hall Dilemma, 2:15 p.m.

Humans claim privileged status in the natural world, but they are often outperformed by animals in many tasks. Previous research has shown that pigeons (Columba Livia) outperform humans in the Monty Hall Dilemma, a notorious brain-teaser, after basic training. My presentation compares humans and pigeons in a more complex version of the Monty Hall Dilemma that involves not only probability assessment but also planning. Faculty Sponsor: Walter Herbranson

Peter Osseward, Whitney Griggs | Kinematics of Coordinated Eye-Head Movements in Humans During Large-Amplitude, Visually Guided and Memory Tasks , 2:30 p.m.

Gaze shifts move one's line of sight to different targets; large, rapid gaze shifts require combined eye and head movements that are carefully coordinated by the brain. Previous research has revealed some consistencies in eye-head coordination, but has mostly been done in lab settings using memory-guided tasks (gaze shifts to memorized target locations), rather than visually guided tasks — a more common behavior. We used a prototype device for measuring human eye and head movements to examine various memory- and visually guided gaze shifts in lab and natural settings. In both settings, we found differences in eye-head coordination between memory- and visually guided gaze shifts, suggesting that the tasks are accomplished by different neural programming. Because gaze shift characteristics can vary in patients with neurological disorders (e.g., Huntington's disease), this research may lead to improved diagnosis and treatment. Funded by the M.J. Murdock Charitable Trust and Whitman College. Faculty Sponsor: Thomas Knight

Surabhi Veenapani, Alyssa Nevell, Julianne Linn | Alcohol and the Power of Suggestion, 2:45 p.m.

Our presentation examines the effect that the consumption of alcohol, or the perceived consumption of alcohol, has on an individual's ability to conceive creative solutions to "insight problems." Insight problems tend to be ill-defined and do not employ explicit cognitive processes in the way that regular, "non-insight problems" do. Insight problems demand a certain level of creativity. One's creative thought process can certainly be impacted by alcohol (and other psychoactive substances), but whether the effect is positive or negative is often contingent upon beliefs the individual may already have regarding its impact. To test and compare the effects of alcohol versus a placebo, participants were separated into six different groups, where they received a negative suggestion, a positive suggestion, or no suggestion at all with either real or placebo alcohol. The participants were then asked to solve a set of 12 different insight problems. Faculty Sponsor: Paul Jeffries

Michael Schier | The Creation, Perception, and Illusions of Sound, 3 p.m.

The study of sound is a pursuit that is undertaken by many fields in academia including physics and psychology. The basic physical principles of the propagation and combination of sound waves are explored, including the method in which a speaker cone moves to consistently create the expected sound. In addition, the field of psychoacoustics attempts to understand differing ways that people perceive sound. Psychologists in this field conduct "just noticeable difference" tests, which measure a subject's ability to discern minute differences in tone or volume, as well as explore the famous "tritone paradox," in which certain combinations of tones played sequentially create a dichotomy of subjects who believe the same tones are either increasing or decreasing in pitch. Another intriguing effect is demonstrated by the "Shepard glissando," a repeated short loop of tones that creates an auditory illusion of constantly increasing pitch. Faculty Sponsor: Kurt Hoffman

Environmental Science

Science 100 (Brattain Auditorium)

Mackenzie Gerringer, moderator

Kelee Peyton | Characterization of Proteins Participating in the Degradation of an Environmental Toxin: Purification and Crystallization of PcpA, 2 p.m.

After its introduction in 1930, pentachlorophenol became one of the most widespread biocides in the U.S. However, due to its demonstrated health risks, its use outside of wood preservation treatments was restricted in 1987. In 1985, the bacterial strain Sphingobium chlorophenolicum was discovered and found to be capable of naturally degrading PCP through an enzyme pathway. One of the enzymes in this pathway, PcpA, is particularly interesting for its function as a non-catechol-like ring-cleaving enzyme. While catechol ring-cleaving dioxygenases have been extensively studied, hydroquinone ring-cleaving dioxygenases have not been as well-characterized. The goal of this study is to further characterize PcpA through X-ray crystallography techniques which will ultimately yield a three-dimensional model of its protein structure. Faculty Sponsor: Timothy Machonkin

Kaitlin Cloud | Chemical Analysis and Ecohydrological Effects of Aerosols in a Costa Rican Premontane Cloud Forest, 2:15 p.m.

The montane cloud forest, a unique tropical ecosystem, gathers a significant portion of its water directly from clouds, rather than precipitation, increasing water supply for the entire watershed. Studying the ecohydrology of mid-elevation tropical forests can help predict the effects of global climate change on montane cloud forests. My research examines the relationship of aerosol quantity and type to fog prevalence in the premontane wet forest of Costa Rica. Daily fog and precipitation samples and particle counts were collected at varying levels of elevation and canopy cover. Water samples were analyzed for chemical composition with Raman spectroscopy, for stable isotope signatures (an indication of air mass origin) with cavity ring down mass spectrometry, and for cloud growth promotion qualities with a cloud condensation nuclei counter. The chemical data were combined with daily weather patterns and particle abundances to quantify biogenic and anthropogenic influences and their effects on water availability. Faculty Sponsor: Amy Molitor

Shannon Buckham | Vessel Impact on Southern Resident Killer Whale "orcinus orca" Behavior in the Salish Sea, 2:30 p.m.

The Southern Resident killer whale population spends the majority of the summer months in the inland waters of the Salish Sea. Much of this range resides in areas that are impacted considerably by human use. As a result, the population has been listed as "depleted" under the Marine Mammal Protection Act and "endangered" under the Endangered Species Act as well as Canada's Species at Risk Act. Reduction in prey availability, high toxin levels from pollutants, and vessel disturbance have been listed as the three primary threats to the Southern Resident population. In April 2011, NOAA implemented new laws regarding vessel behavior around Southern Residents, increasing the distance that vessels are allowed to be from the whales. The purpose of this study was to increase understanding of vessel impact on Southern Resident behavior. Preliminary results show that location and vessel numbers impact overall Southern resident behavior. Faculty Sponsor: Paul Yancey

Mackenzie Gerringer | The HADES Project: Fish From 25,000 Feet and the Future of Deep-Sea Research, 2:45 p.m.

Only 1-2 percent of the world's deep-sea trenches (the hadal zone, 20,000-36,000 ft) have been explored. HADES (Hadal Ecosystem Study), which began this year, will investigate the animals that have adapted to live in these uncharted regions. What determines the maximum depth limit for fish? How and what do animals eat at such a distance from sunlight? How do organisms live at more than 10,000 psi of pressure? What strange creatures have yet to be discovered at these greatest ocean depths? With new technology (free-falling trench landers and the new Nereus submersible), funding, and public interest, these questions and more could soon be answered. HADES is an international collaboration sponsored by the National Science Foundation involving Woods Hole Oceanographic Institution, Whitman College, National Geographic, University of Hawaii, University of Aberdeen, and New Zealand's National Institute of Water and Atmospheric Research working together to explore the earth's final frontier. Faculty Sponsor: Paul Yancey

Disease Studies

Science 151

Natalie Tamburello, moderator

Sam Sadeghi | Protein Markers Help Improve Cancer Diagnosis and Treatment, 2 p.m.

Malignant gliomas, arising from glial cells, are the most common central nervous system tumor. Among the most common type of gliomas, the astrocytomas, median survival ranges widely from only 12 to15 months for patients with the most malignant form, glioblastoma multiforme, to up to 10 years for less malignant forms. While knowing the grade of the tumor allows oncologists to design more efficient treatment plans for patients, microscopic differentiation between a grade III and grade IV (Glioblastoma multiforme) tumor is imprecise. My research used protein biomarker assays to provide a more quantitative method to differentiate the tumor grade. I will present results identifying the high mobility group protein HMGA1 as a candidate marker to differentiate between grade IV and grade III tumor types. This marker will hopefully lead to more efficient treatment plans and ultimately decrease recurrence and increase the survival rate in patients with these tumors. Faculty Sponsor: James Russo

William Harbour | Investigating the Developmental Genetics of Williams Syndrome, 2:15 p.m.

Williams Syndrome is a neurodevelopmental disorder that occurs in ~1 in 8000 births. It is the result of a partial deletion of genetic information and manifests itself in humans through a variety of physical symptoms and behavioral characteristics. One of the genes deficient in WS individuals encodes a protein called Williams Syndrome Transcription Factor, which is involved in many important biological processes such as DNA repair, vitamin D metabolism, and gene regulation. We investigated the role of WSTF in developing embryos of the frog Xenopus laevis by measuring the expression of genes critical to vertebrate development, which are suspected to be affected by the presence of WSTF. Our results contribute to a better understanding of WSTF and the genetic basis for certain symptoms of Williams Syndrome. This project was supported in part by an REU site award from the National Science Foundation. Faculty Sponsor: Daniel Vernon

Sophie Davis | Understanding the Neural Mechanism of Pain Modulation During Migraines and Treatment of Cutaneous Allodynia During Migraine, 2:30 p.m.

A study was conducted at Oregon Health Sciences University in order to test the role of certain brainstem neurons in generating altered pain states during migraine headaches. In addition, this study assessed whether these cells are targeted by certain anti-migraine medications. A standard animal model was used to induce migraines in rats, and single-cell recording combined with focal injection of drugs was used to monitor cell activity while manipulating physiological parameters. The activity of brainstem neurons was recorded while noxious stimuli were administered to the rat during induction of migraine and following local injection of anti-migraine drugs. Data have been collected and analyzed using non-parametric statistical tests to determine whether brainstem neurons contribute to the development of heightened peripheral skin sensitivity during migraines. Faculty Sponsor: Christopher Wallace

Natalie Tamburello | Dyslexia and Thalamus Volume: An Evaluation of the Theories of Dyslexia, 2:45 p.m.

Reading represents one of the most remarkable evolutionary steps of humankind, so significant that it reorganized the wiring of our brains, altering our evolution. However, not all humans have made this evolutionary leap in the same manner or with equal ease. Individuals with dyslexia can learn to read, but the process is different. These unique individuals are unable to utilize the brain structures devoted to reading in the same way as individuals without dyslexia. In my work at the Center for Interdisciplinary Brain Research at Stanford University, I assisted a longitudinal study that looked for neuroanatomical predictors of dyslexia using imaging and behavioral testing on children at risk for developing dyslexia. The thalamus significantly contributes to our reading ability, but its role in dyslexia is underinvestigated. My research centers on correlating thalamus volume and reading ability. These findings could greatly contribute to early identification of children with dyslexia. Faculty Sponsor: Matthew Prull

State of the State I

Science 165 (Gaiser Auditorium)

Seth Dawson, moderator

Spencer May, Daniel Merritt, Madelyn Peterson, Christine Kiely, Lauren McCullough, Seth Dawson | State of the State for Washington Latinos: Immigration and Political Representation, 2 p.m.

Students from this year's "State of the State for Washington Latinos" project present their research on Latino representation and the impact of immigration policies across the state. Spencer May, Daniel Merritt, and Madelyn Peterson discuss their interviews with community members and law enforcement officials about the recently implemented Secure Communities immigration program and its impact on Latino communities in Benton, Franklin, Walla Walla, and Yakima counties. Seth Dawson, Christine Kiely, and Lauren McCullough discuss the history of Latino representation in 10 Washington counties, drawing on the official electoral history and interviews conducted with community leaders in various Latino communities. Panelists offer an analysis of the issues facing Latino communities and recommendations to make Latino communities safer and better represented. These projects were developed in conjunction with OneAmerica and the National Voting Rights Advocacy Initiative. Faculty Sponsor: Paul Apostolidis

Media and Message

Kimball Theatre

Paige Joki, moderator

Noah Lerner | Father Charles Coughlin: American Religion in the Great Depression, 2 p.m.

Charles E. Coughlin was a Catholic priest and a radio personality who at his peak in the 1930s generated a listening audience of more than 40 million Americans. History remembers him as an anti-Semitic demagogue. Why then did

so many Americans listen to him? What made Coughlin special? My presentation investigates what made the "Radio Priest" a spokesman for 1930s America. Faculty Sponsor: Rogers Miles

Emma Snyder | ABC's "Modern Family": The Delicate Balance Between Revising and Reinforcing Nuclear Family Favoritism, 2:15 p.m.

Since 1950s-era shows like "Father Knows Best," American family sitcoms have evolved from featuring conventional nuclear families and white-picket fence façades to portraying family structures that fall outside of nuclear family norms. A handful of contemporary media portrayals of family, such as "Modern Family" and "The Kids Are All Right," can be seen to function as a potent social movement, with potential to broaden the prevailing American political definition of family that has traditionally excluded much of the population. However, while it's true that "Modern Family" exposes network audiences to "alternative" families, the show also reinforces nuclear family favoritism in subtly nuanced ways. In analyzing this series and its consequences, I propose a trajectory for the transition of family media portrayals, from a "modern family" grounded in nuclear family ideology to a "postmodern family," a conception that equally values all family compositions and alleviates families from confining labels. Faculty Sponsor: Keith Farrington

Catherine DeCramer | "Sesame Street" in South Africa, 2:30 p.m.

The word takalani means "be happy" in TshiVenda, one of South Africa's 11 official languages. Thirty years after the debut of "Sesame Street" in the United States as the country's first multiracial educational children's television show, the U.S. co-production "Takalani Sesame" premiered on South African public television, partially funded by USAID. Today, the cast of "Takalani Sesame" includes the familiar Bert and Ernie, except that Bert speaks with a black South African accent and Ernie with a white one. They socialize with Kami, a bright-yellow, HIV-positive Muppet whose mother died from AIDS. Kami was created to address the stigma of HIV within South African society. As the nation seeks to reduce the stigma of HIV/AIDS, navigate international development and unify post-apartheid, I argue that a political analysis of "Takalani Sesame" reveals the power dynamics inherent in the South African reconfiguration of an American children's educational television show. Faculty Sponsor: Shampa Biswas

Alethea Buchal | Global Media Conglomerates and the Formation of a Cosmopolitan Identity, 2:45 p.m.

How can identity be used both as a means of social control as well as political resistance? This presentation will examine the work and lives of Columbian-born singer Shakira Mebarak and French-anarchist guitarist Manu Chao in order to understand the nature of identity within the confines of the "culture industry." The case study of Shakira Mebarak shows how an "authentic" music hybrid-identity can be used as a means of social control, because of her dramatic transformation as a singer-songwriter in her work with Sony as well as her aesthetic position as an "object-of-desire" in her 2010 FIFA World Cup debut, "Waka Waka." The case study of Manu Chao shows how an "authentic" music hybrid-identity can be used as a means of political resistance because of his label as an "anti-globalista," his collaboration with international musicians to create his album "Clandestino," and the free, public performances of his band, Mano Negra. Faculty Sponsor: Aaron Bobrow-Strain

Paige Joki | Disrupting Power and Gaze: A Rhetorical Analysis of "No Matter What You Do," 3 p.m.

My presentation examines the ways that the traditional conception of Foucault's panopticon takes on new meaning in the music video "No Matter What You Do" by Benny Banassi. "No Matter What You Do" allows for the panopticon to be reconceptualized, as no stable locus of power can be located. This new power dynamic allows the objects of the male gaze to both reclaim power and deconstruct a seemingly stable power structure that is reified and sustained through the male gaze. I examine gendered expectations within the video and explore the ways static gender binaries and heteronormativity can be disrupted. I contend that Banassi's video shows a new power dynamic that has yet to be explored via the panopticon, as it creates several unstable loci of power. Characters denied power in the music video's prison-like setting are able to work within the power structure to dismantle it. Faculty Sponsor: James Hanson

Gender Studies

Reid GO2

Hari Raghavan, moderator

John Abercrombie | Quanzhen Sexual Practice in Medieval Daoism, 2 p.m.

The relationship between sex and religious practice is often contentious; the ideal monk in the West is often seen as pure, austere, and chaste. While Daoist monks and nuns often fulfilled the same image, their longevity led them to engage in sexual practice they conceptualized as the sharing of yin and yang energy through intercourse. This practice was a distinguishing trait of Daoist hermits (compared to Buddhists and Christians) when attempting to form communal identity within China. In the eyes of many Daoists, not to engage in sexual practice was evidence of foreign influence and an abandonment of traditional Chinese values. My presentation examines the Quanzhen Daoist sect's expression of identity through sexual practice and how this practice drew communal support or disdain from lay followers, challenging the notion that monasticism and sex are necessarily opposed concepts. Faculty Sponsor: Daniel Kent

Christina Tamaru | The "Herbivorous" Men of Japan: Negotiating a New Masculinity, 2:15 p.m.

Masculinity in Japan has long been equated with the hard-working and strictly regimented "salarymen" – corporate employees of Japan's burgeoning post-World War II economy. In recent years, a new breed of "herbivorous" young men has become a symbol of personal and professional passivity. They have been interpreted as a challenge to hegemonic, traditional Japanese masculinity and as a scapegoat for social and economic problems. Using Japanese sources and research materials pertaining to both herbivorous and salarymen masculinity, I outline the factors that fueled the development of a seemingly effeminate masculinity and the complex meanings attributed to the role of these young men in contemporary Japanese society. The significance of my research lies in the generationally and ideologically formed space that the herbivorous men occupy, and the resulting commentary on what it means to be a "man," and by extension, what it means to be "Japanese." Faculty Sponsor: Yukiko Shigeto

Ryan Creal | Queer Street Art and the Legacy of 1980s AIDS Activism, 2:30 p.m.

The AIDS Coalition to Unleash Power is an advocacy group formed in 1987 in New York City with an agenda for gay rights and gay visibility. In my research, I locate ACT UP as the starting point of the queer street art movement, and I focus on the relationships between the street, queer identity formation, and artistic invention. I analyze the reasons that queer artists turned to the streets in the late 1980s and the larger theoretical and political implications of the anti-AIDS movement and its effect on queer artists who are working to legitimize the street art movement today. I formally critique the works in terms of the tension that arises from queer street artists who simultaneously exhibit art works in public urban spaces while presenting their work in prestigious galleries. Faculty Sponsor: Jan Bernabe

Jack MacNichol | Queer Nuns in Whiteface: The Sisters of Perpetual Indulgence, 2:45 p.m.

The Sisters of Perpetual Indulgence are a global order of 21st century nuns dedicated to the promulgation of universal joy and the expiation of stigmatic guilt. They are devoted to the support, education, and development of the queer community through fundraising, service, and community ministry. This presentation will explore the significance and power of the Sisters' signature whiteface makeup. I will reconsider the impacts of whiteface on the Sisters, the populations they serve, and the general public, exploring the role of anonymity, race, ritual, camp, and identity construction. This presentation stems from a broader research project on the Sisters conducted with Associate Professor Melissa Wilcox over the summer of 2011. The project was funded by a Perry Summer Research Award from Whitman College. Faculty Sponsor: Melissa Wilcox

Hari Raghavan | The Trouble With Being a Boy: Beyonce's Struggles with Gender, 3 p.m.

What does it mean to be a boy? What does it mean to be a man? These questions have long provoked innumerable interpretations, such that it is difficult to say whether any inquiry can ever be neatly resolved. The questions remain important to ask if we wish to broaden our understanding of gender's societal implications, which makes a song like

Beyonce's "If I Were a Boy" all the more necessary to critically re-evaluate. In my presentation, I argue that this ballad, despite appearing to criticize masculine conventions, does more to strengthen than alter the binary of male versus female. I examine how the song treats gender as that which Judith Butler calls a "performative construct," created and affirmed through repeated acts. I also address Beyonce's reluctance to challenge these acts or allow for self-revision, such that boys can only ever be boys, at permanent odds with the opposing sex. Faculty Sponsor: James Hanson

Boundaries and Borders

Sherwood 222

Margaret du Bray, moderator

Elana Congress | Conflicting Theories of Aesthetic Appreciation: Maintaining "Distance" or Falling on the Sidewalk?, 2 p.m.

In his theory of "Psychical Distance," Edward Bullough maintains aesthetic appreciation occurs only when sufficient distance exists between the perceiver and the object he perceives; if the perceiver is too close or too far from the object, he cannot appreciate it aesthetically. In contrast, Elaine Scarry contends that when an individual sees a beautiful person, he or she is "imperiled" or "overpowered." For Scarry, experiencing beauty requires that the perceiver lose composure. This distance eliminates the perceiver's vulnerability. If we consider perceiving beauty as a type of aesthetic appreciation, Bullough and Scarry's theories seem to contradict one another. To reconcile these disparate perspectives, I consider Vanessa Beecroft's art pieces involving the nude female. I also draw on my personal experience drawing a nude model to examine how establishing Distance enables the artist to see his model as an "aesthetic object" rather than a "human subject," allowing for aesthetic appreciation. Faculty Sponsor: Geoffrey Ashton

Michael Hanley | Building Barriers Around the World: The Symbolic Function of Walls, 2:15 p.m.

Politicians frequently argue that constructing barriers is necessary to protect national security and wall out all manner of illegal activity. Yet, in reality walls today are highly porous. In spite of their often-formidable appearance and the political rhetoric used to support their construction, walls largely fail to block the flow of unauthorized people and goods. Walling off a country does not stop illegal immigration, and gating off a community does not prevent crime. However, despite their overwhelming failure to keep people out, walls do have tangible effects. In my presentation I argue that walls define space and demarcate the boundaries of communities. Through this action walls shape the collective identities of those they enclose and enforce exclusion upon individuals physically walled out. I argue that even though walls are ineffective physical barriers, they symbolically function to define people and places. Faculty Sponsor: Phil Brick

Hannah Johnson | National Identity and the U.S.-Mexico Border: An Examination of Boundary-Producing Discourse, 2:30 p.m.

While we often conceive of borders as natural, scholarship in the disciplines of geography and political science suggests that borders do not exist in and of themselves but are produced through social and legal policies and practices. This result informs national identity: In delineating spatially the divide between two countries, the border delineates where, for example, Americans live and where Canadians or Mexicans live. My research examines the discourse in the New York Times regarding the U.S.-Mexico border and links between the discursive production of the border and the racialization of national identity during two time periods: the five years leading up to a massive deportation effort in 1955 known as Operation Wetback and the five years following 9/11. My examination reveals the relationship between the discursive production of bounded spaces and the continued racial structuring of "post-racial" America. Faculty Sponsor: Shampa Biswas

Margaret Du Bray | Borders and Boundaries: Fears of Contagious Elements in a Postmodern, Globalized World, 2:45 p.m.

New contagious diseases are often portrayed by the media as "the coming plague," frequently without regard for their actual danger to society. My presentation analyzes the extent to which media demonstrations of harmful diseases are rooted in cultural conceptions rather than epidemiology. Using Ebola and SARS as two case studies, I examine media representations through the lens of contagion and boundaries to demonstrate that, while fears of contagious diseases are certainly grounded in the epidemiology of the disease, the media's portrayal of these diseases often links them to certain countries or environments that inspire fear. Thus, the media subliminally influences conceptions of disease and popular thought about international relations. My presentation explores the intersection of fears of contagion and international relations to determine whether such fears are specific to certain diseases and environments or are more ubiquitous. Faculty Sponsor: Suzanne Morrissey

session IV

3:45-5 p.m.

Walla Walla Intersections

Olin Hall 130

Jan Hudson, moderator

Meghan Bill | "Imagine the Challenges": Museum Representations of Colonial Contact Histories in the Walla Walla Valley, 3:45 p.m.

The way we learn, retell, and teach the past depends largely on our perspective in the present. Museums, whose exhibits attract a wide audience, hold powerful cultural and political influence in how histories are understood. The Walla Walla Valley is home to several museums and interpretive centers that teach these histories to the region's residents and visitors. My presentation investigates local representations of colonial contact in the Walla Walla Valley at Tamástslikt Cultural Institute, Whitman Mission National Historic Site, and Fort Walla Walla Museum. The frame for these histories is 1805-1855, a period marked by significant change for native peoples and pioneers alike. Through a consideration of each museum's exhibits, curation, and viewer experiences, I explore the contemporary implications of their narratives and investigate how these three institutions engage with one another across geographic and intellectual space to represent shared histories. Faculty Sponsor: Matthew Reynolds

Adriel Borshansky | Embraced Out West: Whitman's First Jewish Professor, 4 p.m.

In 1936, Whitman College hired David Lovett, an English professor and the college's first Jewish faculty member. I investigate the experiences of Lovett and place them in dialogue with broader developments – anti-Semitism, assimilation, and secularization – in American religious life at the time. Existing literature has explored the presence of systematic anti-Semitism in Northeastern colleges and universities in the 1930s, but Lovett's experiences as a Jew out West were remarkably more positive than the experiences of Jews at schools such as Dartmouth and Yale. The possible explanations for this disparity say a great deal about higher education, Judaism, and America as a whole in the early decades of the 20th century. Lovett's story is a part of a larger narrative about western Jewry in the 1930s. Faculty Sponsor: Rogers Miles

Margaret Allen | Speaking for the Trees: Eco-Literacy in Public Schools, 4:15 p.m.

My presentation focuses on findings from my research on environmental themes in the books of public schoolchildren. I analyze environmental themes in the books available and assigned at Sharpstein Elementary School in Walla Walla. I discuss how the selection of environmentally-themed reading material varies according to the age, ethnicity, gender, and socioeconomic status of these schoolchildren. Finally, I present the results of two classroom sessions in which I asked third- and fifth-grade students to respond to a reading of Dr. Seuss' "The Lorax" through a written questionnaire. My findings may shed light on the current state of environmental education and literature in public schools. Faculty Sponsor: Jesse Abrams

Jan Hudson | Policing in Walla Walla County: A Community Approach, 4:30 p.m.

Every police department has its own way of policing. Over time, the formal standards and policies within any department are almost inevitably supplemented by informal procedures and ways of policing. Small-town police officers in particular walk a fine line by having to act as public servants as well as fellow community members. Policing styles in such communities are highly susceptible to factors specific to the general public as well as the background of individual police officers. Ideally, discretion of the officers and policies of the police department are shaped to best address the crime concerns in a given community. In my presentation, I investigate the following question: How does the contextual environment of the community in conjunction with the attitudes and backgrounds of police officers contribute to a unique policing style that best suits the needs of Walla Walla County? Faculty Sponsor: Keith Farrington

"Hiroshima mon amour": Three Views

Olin Hall 157

Kari Paustian, moderator

Anne Gaskins | Identity Crisis: An Exploration of Character Conflation in "Hiroshima mon amour," 3:45 p.m.

The 1959 French film "Hiroshima mon amour" explores the psychological struggles associated with remembering and reliving tragic events. The main characters, a French woman and a Japanese man, are lovers. They have no names or strong individual features; their identities are intentionally ambiguous. They grapple with their own personal histories in the context of collective historical events. Mutual reflection on the French woman's experience with multiple disasters throughout the film allows her to step outside of herself and live simultaneously in the present and the past. Director Alan Resnais and screenplay creator Marguerite Duras use this confusion to illustrate the pull of subjective experience, showing how human minds and identities are a conflation of remembering and forgetting, past and present, and formative emotional experiences. This conflation explores the boundaries of memory itself, leaving us to wonder whether commemoration and reflection can truly encompass remembered events. Faculty Sponsor: Sarah Hurlburt

Erin Drake | Epistemological Uncertainty in "Hiroshima mon amour," 4 p.m.

Alain Resnais' film "Hiroshima mon amour" begins with a dialogue between the protagonists in which the man states that the woman has seen nothing in Hiroshima, and she in turn states that she has seen everything. These two

statements negate each other, yet both are true in the context of the film where Hiroshima is represented not only as a place that underwent destruction but also as an idea that was a rupture in time. All post-World War II Hiroshimas, however, exist only as reconstructions that cannot truly represent the Hiroshima that was. Consequently, it is impossible for the characters to know anything about the Hiroshima that was, whether it be the place or the idea. My presentation addresses Resnais' representation of the impossibility of epistemological certainty in a post-nuclear age by examining how Hiroshima, as both a place and an idea, is reconstructed in the film. Faculty Sponsor: Sarah Hurlburt

Kari Paustian | The Unfaithful Memory, 4:15 p.m.

My presentation examines Alain Resnais' mediation on the concept of fidelity in the film "Hiroshima mon amour," the story of a Japanese businessman and a French actress who have a brief love affair in Hiroshima, Japan. The film explores the ways societies and individuals remember and forget, focusing on the fallibility and infidelity of both the individual and collective memory. In a world where the news is updated 24/7, where blind movement forward is expected, and where growth is championed above all else, it is important that we scrutinize how and why we remember and value the act of remembrance, while accepting that a memory is a representation of something from the past, not the thing itself. Faculty Sponsor: Sarah Hurlburt

Bias and Social Response

Reid, Ballroom B

Kate Kunkel-Patterson, moderator

Noah Henry-Darwish, Courtney Sanford | Awareness of Implicit Bias: What Motivates Behavior Change?, 3:45 p.m.

Informing people that they are implicitly biased may cause them to experience cognitive dissonance, feelings of guilt that arise when perceived attitudes are inconsistent with self-concept. To reduce this guilt, people often change their behaviors. In our study, participants were tested with a measure of implicit weight bias and then given predetermined feedback informing them of their implicit biases. To determine whether motivation to change behavior comes from feelings of guilt within the self or from fear of what others might think, participants completed a value-affirmation task to boost self-concept. We hypothesize that people are less likely to exhibit explicit bias if given the opportunity to evaluate an overweight job applicant after being told that they are implicitly biased. We address underlying motivations for controlling prejudiced attitudes and behaviors. Knowing what motivates people to reduce biased behaviors and attitudes may help to discover ways to reduce discrimination. Faculty Sponsor: Brooke Vick

Kendra Klag | Access and Barriers to Education for the Deaf and Hearing Impaired in India, 4 p.m.

This study examined the access to education for hearing impaired children in the city of Varanasi, in Uttar Pradesh India. In Varanasi and across India, a severe lack of ear and hearing healthcare services blocks the prevention, diagnosis, and treatment of hearing loss in children, thus impeding the educational attainment of HI individuals. In this study, I interviewed teachers and principals involved in HI education to examine: the practices of the HI educational facilities, the role of Sign Language in HI education and community, and the relationship between English and Hindi in schools, society, and HI education. Due to differences in educational philosophies with respect to developmental abilities, and actual educational practices which don't provide sufficient support for students, the HI don't have equal or adequate access to education. In the future more linguistic, ethnographic, and epidemiological research needs to be conducted to help improve HI education in India. Faculty Sponsor: James Russo

Mary Allain | Employment Opportunities for Adults with Autism, 4:15 p.m.

Adults with autism comprise the group least likely to be employed within the disability community. As the incidence rate of autism spectrum disorders continues to rise and the 1.2 million children currently diagnosed with ASD grow older, the need for appropriate interventions and services is growing. I conducted research on the current employment needs of adults with autism with the purpose of determining the inadequacies and limitations of services and programs available to adults with autism. From my findings, I propose several ways that the state of Washington can help this group further establish themselves in the employment sector and ensure that they are receiving the support

services they need in order to be successful in their adult lives. By promoting awareness of this salient issue, individuals within society will have a better understanding of autism spectrum disorders and how this population can contribute to society in very meaningful ways. Faculty Sponsor: Keith Farrington

Kate Kunkel-Patterson | Justifying Political Violence: The Weather Underground's Unique Connection to John Brown, a 19th Century Abolitionist, 4:30 p.m.

The Weather Underground, also called the Weathermen, was a radical branch of the 1960s organization, Students for a Democratic Society. The group drew on the ideology and historical legacy of a 19th century Civil War Era figure and abolitionist John Brown. In my presentation I explore the nature, meaning, and implications of the surprising connection of the Weather Underground to Brown. The Weather Underground incorporated their image of the radical abolitionist into much of their rhetoric, justifying their own political ideology, legitimacy, and actions while at the same time furthering Brown's legacy. Brown's ideology of political violence, in which ends justify means, spoke to the Weather Underground and impacted their organization and, by extension, their role in American history. Faculty Sponsor: Nina Lerman

Archaeological Finds: From Pottery Neolithic to Masada

Science 100 (Brattain Auditorium)

Emily Hanscam, moderator

Janaki Phillips | Emergency Archeological Excavations at 'Ain Ghazal Jordan, 3:45 p.m.

Over winter break 2011-12, I accompanied Professor Gary Rollefson to the Neolithic town of 'Ain Ghazal on the outskirts of Jordan's capital city, Amman. Earlier this year bulldozers destroyed five acres of the site before the Department of Antiquities halted work. The destruction impacted several domestic structures dating to the Yarmoukian period of the Pottery Neolithic around 6,000 BC. Our excavation yielded a rare look into the ritual lives of the Yarmoukian people who lived toward the end of the history of occupation of the site, which ranged between 8,300-6,000 BC, spanning the beginning of farming in the MPPNB though the Yarmoukian. We uncovered a burial of a young Yarmoukian female, only the second case of such a ritual in Jordan and one out of six in the entire Levant. My presentation describes the methods and processes of our archeological excavation as well as the significance of our finds. Faculty Sponsor: Gary Rollefson

Alyssa Bader | Mummy Dearest: How Modern-Day Uyghurs Use Archaeology to Construct a Unified Identity, 4 p.m.

The Uyghurs of China's Xinjiang region have become "the other Tibet" in the eyes of the Western world, a title earned from their struggle for political autonomy from China's Han-dominated central government. Some Uyghurs, frustrated by the suppression of their ethnic language, culture, and Muslim religious practices, have called for a separation from China and the creation of an independent state. These separatists are uniting the fragmented oasis communities of Uyghurs under a singular identity: the descendants of the Beauty of Kroran. This supposed ancestor is one of the many European-looking mummies which have been excavated from Xinjiang's Taklamakan Desert over the past century. The Uyghurs are using the Beauty of Kroran to demonstrate that they, not the Han, have an ancestral claim to the region. In my presentation I will use the case of the Beauty of Kroran to demonstrate how archaeology can influence the construction of modern identities. Faculty Sponsor: Jason Pribilsky

Ian Kretzler | A Discordant Discourse: Kennewick Man and the Future of NAGPRA, 4:15 pm.

The 1990 passage of the Native American Graves Protection and Repatriation Act sought to address centuries of archaeological practice that alienated Native Americans from their sacred histories. NAGPRA's implementation, though largely positive, has not escaped controversy, and no example highlights the law's problems better than the case surrounding the individual known as Kennewick Man. In many respects – arguments over the skeleton's "race" for example – the debate over Kennewick Man represents a throwback to a time in which Native Americans and archaeologists

were adversaries, not partners. Reviving such a relationship not only undermines the vision and collaborative spirit of NAGPRA, it threatens the viability of archaeology as a culturally conscious discipline. In this presentation, I discuss the cultural and legal forces at work in the battle for Kennewick Man and comment on how archaeologists and Native Americans can learn from and celebrate the past in mutually respectful ways. Faculty Sponsor: Gary Rollefson

Emily Hanscam | The Construction of Identity in Nazi Germany and Israel, 4:30 p.m.

How do nations use the past to create unity in the present? Nazi Germany and the early Israeli state both appropriated the past to create meaningful, nationalistic narratives, which they used to unify their respective populations. Israeli archaeology during the 1960s provided scientific evidence for the idea that Israel was the ancient Jewish homeland. My investigation focuses on Masada, a site that Israelis celebrated for providing evidence for a heroic Jewish past. Recently, however, scholars proved that much of this research was wholly incorrect. In the case of Nazi Germany, I investigate the work of Nazi academics such as Alfred Rosenberg, who conducted historical studies to trace the lineage of the German people back to their Nordic Aryan origins and who drew conclusions that were historically impossible. Faculty Sponsor: Jason Pribilsky

East Meets West: War, Crime and Politics

Science 151

Sara Rasmussen, moderator

Benjamin Menzies | Democracy and Demilitarization in Postwar Japan, 3:45 p.m.

In 1946, most observers inside and outside Japan assumed that a resurgence of Japanese militaristic imperialism was inevitable. A mere decade later, thousands of Japanese stormed the streets in defense of the "Peace Constitution" written by the occupiers, forcing a former military man from power using democratic means. My presentation compares the period of American-led forcible democratization in Japan undertaken following World War II with the earlier, less successful period of democratization known as the Taisho period, which ended with the sudden emergence of a military-led government that plunged Japan into more than a decade of imperialist war. Using political theory from Charles Tilly, Robert Scalapino, and Robert Dahl, my presentation examines how the political culture of the Taisho period remained vulnerable to antidemocratic militaristic tendencies, and how the reforms of the postwar period fundamentally reshaped Japanese political culture in ways that continue to reverberate today. Faculty Sponsor: Ashley Esarey

Maia Singhal | Modern-Day Godfathers: A Comparative Study of Organized Crime in Japan and the United States, 4 p.m.

The Yakuza has been a pervasive organized crime group in Japan since the end of World War II, but its roots reach back as early as the 1700s. The Yakuza interpenetrate many aspects of life in Japan and are uniquely integrated into the culture. Closer to home, the American mafia was established in the early 1900s after members of the Sicilian mafia fled to the United States from Italy. The American mafia, or Cosa Nostra, has since become the largest organized crime group in the United States. In my presentation I examine the organization and business ventures of these two groups. I also explore the impact of economic trends on these groups and the relationship between organized crime and politics. The ultimate aim of my research is to develop a theory about the social structure of organized crime. Faculty Sponsor: Akira Takemoto

A. Gabrielle Westcott | Recognizing a Stalemate: Clark Clifford and the Changing of American Policy in Vietnam, 1965-1968, 4:15 p.m.

On Jan. 30, 1968, the Tet Offensive changed the course of the Vietnam War. This event challenged basic assumptions of American progress in the war and prompted a large scale review of Vietnam policy. Clark Clifford, the newly appointed Secretary of Defense in 1968, was a critical participant in this re-evaluation. My presentation examines Clifford's changing views on the Vietnam War and his influence on foreign policy between 1965 and 1968. Through my research I intend to determine what factors prompted high-level officials within the Johnson Administration to

drastically change Vietnam policy, moving from a strategy of gradual escalation to one of de-escalation and negotiated settlement. Faculty Sponsor: David Schmitz

Sara Rasmussen | The Periphery Between Two Metropoles: Central and Southeastern Europe as Postcolonial, 4:30 p.m.

In the years since 1989, the recent communist past of central-southeastern Europe has generated a wide range of academic endeavors in historical revisionism, remembrance, and reconsideration. As old ties to (or tensions with) the Soviet Union have come under close scrutiny, scholars have begun to draw inspiration from postcolonial studies, reframing relations between central-southeastern Europe, Russia and western Europe as postcolonial. My presentation considers how the concept of postcoloniality might be meaningfully applied to the postcommunist context of central and southeastern Europe, while weighing the implications of such an interpretation. Recognizing the extent to which theory travels and understanding central-southeastern Europe as postcolonial can create a space for recognizing hierarchies that shape relations between Russia, central-southeastern Europe, and western Europe. Faculty Sponsor: Shampa Biswas

State of the State II

Science 165 (Gaiser Auditorium)

Hannah Holloran, moderator

Katie DeCramer, Andrew Ryan, Simi Singh, Charlie Weems, Mary Allain, Julia Stone, Adam Delgado, Cynthia Ramos, Hannah Holloran | Connections Between Education, Poverty and Race in Walla Walla, 3:45 p.m.

Students from the "State of the State for Washington Latinos" project present a panel discussion on education, poverty, and race in Walla Walla. Last fall, Adam Delgado and Cynthia Ramos interviewed students, parents, and staff from Walla Walla's public schools to explore whether English Language Learners programs have helped students achieve academic success. Katie DeCramer, Andrew Ryan, and Simi Singh researched the level of "cultural competency" in the schools through similar methods. Through Geographical Information Systems, surveys, and interviews, Charlie Weems, Mary Allain, Hannah Holloran, and Julia Stone analyzed poverty in Walla Walla and how people of different racial backgrounds navigate it. Together, these students offer in-depth information about the connections between education and poverty for Latinos and others in Walla Walla, and advocate change to increase social equality. Faculty Sponsor: Paul Apostolidis

Great Performances

Kimball Theatre

Erik Feldman, moderator

Mark Arand | Theme and Variations for String Quartet, 3:45 p.m.

The theme and variations form, wherein a composer explores and expands specific elements of a given theme, has been a compositional staple for hundreds of years. Composers such as Handel, Mozart, and Beethoven have used this form to great effect, and it continues to be a popular mode of composition. In my piece, written for string quartet, an original theme is presented, followed by five variations, which explore styles ranging from Romanticism to minimalism to American nationalism. The composition is performed by Joshua Melander, first violin; Ryan Jacobs, second violin; Aleida Fernandez, viola; and Erik Feldman, cello. Faculty Sponsor: John David Earnest

Elizabeth Fleming | Discovering the Music of Women Composers: A Focus on Elfrida Andrée, 4 p.m.

My presentation focuses on Swedish composer Elfrida Andrée and her a cappella choir music. I will present a short biography of Andrée followed by a discussion of my work with her a cappella choir manuscripts. I will discuss the process I have followed in order to transcribe the pieces from handwritten manuscripts to a publishable format. I will conclude by conducting a performance of "Glömska" and "Ur Drömlif," each of which will include an arrangement for men and for women. The choir will consist of select members from the Whitman Chamber Singers. The text will be sung in its original Old Swedish, and English translations will be provided. Faculty Sponsor: Susan Pickett

Jordan Brown | "American Variations for Two Guitars," 4:15 p.m.

A set of variations on an original theme, this composition explores the considerable musical possibilities of the classical guitar, following the development of the instrument's expressive qualities through various periods and styles. The work weaves musical fabrics as diverse as Spanish flamenco, French impressionism, the Argentine tango and the American blues, revealing surprising commonalities and highlighting the guitar's unique contributions to each form. Performed by Gabriel Lewis and Phillip Lynch (faculty). Faculty Sponsor: John David Earnest

Peter Qualtere-Burcher | "The Compass Suite," 4:30 p.m.

"The Compass Suite" is a four-movement musical exploration of the four directions (North, South, East, West) that I composed for flute and piano. Each movement attempts to capture the essence, color, and politics I associate with each of the four directions. As a means to explore the creative process, I made a conscious effort to face in one direction while composing each movement. (This required frequently rotating a large piano and painting N,S,E,W in my room.) This technique demanded physical relocation and paradigm variety. The simple act of looking at a different wall and sending the imagination in a straight line past that wall provided a wealth of inspiration and curiosity. Who or what lives beyond that wall? What do they listen too? How far east, exactly, is East? I try to address these questions in the suite. Performance by Kristin Vining (piano) and Kristi Von Handorf (flute). Faculty Sponsor: John David Earnest

Erik Feldman | A Walk In The Woods: Writing a Suite of Cello-Piano Character Pieces, 4:45 p.m.

I will present four cello-piano duets based on the experience of a walk in a forest. Each piece is influenced by a specific scene or feeling. In addition, each piece uses themes that are built upon in subsequent pieces, giving the whole suite a sense of thematic and melodic unity. I will perform the pieces and describe the compositional process, from inspiration, initial musical sketches and ideas, to final product. I will discuss both the creative and technical aspects of the compositional process. Faculty Sponsor: John David Earnest

Immigration, Bias and Justice

Sherwood 222

Daria Reaven, moderator

Omar Ihmoda | The "Turcos" of Argentina: Middle Eastern Immigrants and the Imagined Argentine Community, 1897-1955, 3:45 p.m.

Between 1897 and 1955 at least 150,000 Middle Eastern immigrants arrived on the shores of Argentina, constituting the fourth largest immigrant group in the nation by 1955 (behind Italian, Spanish, and German immigrants). My presentation addresses how Argentine society viewed Middle Eastern immigrants, or "turcos"; how these views may have related to the class, race, religion, and cultural practices of the groups; how views of these immigrants changed over time; and how depictions of the groups compared with those of other immigrant minorities. My presentation will also explore the ways in which Middle Easterners attempted to gain acceptance by redefining the "essence" of the turco, appropriating national symbols, performing in nationalistic celebrations, and participating in the discursive struggle to define the nature of the imagined Argentine community and delineate the groups that could constitute it. Faculty Sponsor: Julie Charlip

Kayla Foster | Berlin: A City of Immigrants, 4 p.m.

"Berlin is a city full of secrets – nothing is as it first appears." Like many immigrants in the book "Russendisko," Wladimir Kaminer internalizes a jumble of cultural identities: part Russian, part Jewish, part German, but 100 percent Berliner. While Kaminer views this multifaceted identity as distinctly helpful in his assimilation, not all Germans agree. Might his immigrant status position Kaminer to know what it means to be a Berliner better than the Germans he encounters? Or do two types of cultural identities exist in Berlin: those belonging to Berliners who are German-born and those exhibiting the fusion of many different cultures that typifies migrant life in the city? This presentation will illuminate the role of Berlin in facilitating the interaction of the many elements of Kaminer's cultural identity. Faculty Sponsor: Susan Babilon

Alice Minor | Disrupted "Danishness," 4:15 p.m.

Denmark is firmly rooted in its identity as a social welfare state that promotes progressive politics with regard to gender and sexuality. Tolerance, equality, freedom, democracy – these values all play into the Danish sense of shared identity. Immigration to Denmark from the Middle East, Asia, and Africa over the past several decades has highlighted how ethnicity also contributes to the definition of "Danishness." Complicating this common understanding of current Danish politics – "Denmark was homogenous but immigrants came and changed the way society works" – I argue, first, that Denmark never was a homogenous entity, and, second, that through a close look at the way Danes across the political spectrum have responded to gender within immigration, we can see fractures in the perceived united conception of "Danishness." Faculty Sponsor: Shampa Biswas

Ahmed El Kottby | Symbiotic Equivalence, 4:30 p.m.

Distributive justice deals with the allocation of costs and benefits arising either from human-human or human-nature interactions. Theories of distributive justice must confront two questions: On what principles should allocation be founded? What is the optimal way of effectuating these allocations? The theory of symbiotic equivalence is a novel framework that ventures to answer and reformulate these questions. Symbiotic equivalence takes seriously the idea that systems whose benefits exceed their costs are inherently self-sustainable. This is realized when those parts of the system that are interdependent are made equivalent in terms of cost-benefit allocation. My presentation introduces the theory of symbiotic equivalence, its potential applications, as well as surprising intersections with John Rawl's "A Theory of Justice." Faculty Sponsor: William Bogard

Daria Reaven | "Only Free People Can Negotiate": Stories From Israel and Palestine, 4:45 p.m.

My presentation highlights stories and experiences from a summer spent conducting oral storytelling workshops throughout Israel and the West Bank. My workshops attempted to bring together Israeli settlers and Palestinians to cultivate and share narratives told through the voice of their grandparents. I present several recorded stories from workshop participants as well as pictures, blog posts, video clips, and anecdotes from various individuals who regularly participate in political demonstrations, village protests, and various "dialogue-building initiatives." I argue that many current attempts (including my own) to improve Israeli-Palestinian relations often illustrate and perpetuate tensions that exist, on both sides, between acknowledging injustice and normalizing it. Faculty Sponsor: Shampa Biswas

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Special thanks to Donna Jones, Summer Singer, Amber Woodworth, Amy Dodds, Doug Scarborough, Bon Appétit, Whitman College Technology Services and the student coaches and student musicians who contributed their time and talents.

WHITMAN COLLEGE

ON THE COVER:
(Left to right) Peter Qualtere-Burcher ’12, music; Dandi Huang ’13, biochemistry, biophysics, and molecular biology; and Nanyonjo Mukungu ’12, politics

Photography by Greg Lehman
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