4-25-2009

Spokane Intercollegiate Research Conference 2009

Whitworth University

Spokane Intercollegiate Research Conference
Whitworth University
April 25, 2009

Welcome from the President of Whitworth University

The Spokane Intercollegiate Research Conference, now in its eighth year, is open to students from Whitworth, Gonzaga University, Eastern Washington University, and WSU Spokane as well as graduate students from these institutions. This event provides an occasion for some of our most able students to share their academic research accomplishments.

One of the developments that I have found most encouraging during my years at Whitworth is the increasingly rich research environment that our faculty provides for our students, not to mention the enthusiasm with which our students grasp these opportunities set before them. I know the same is true at Gonzaga and EWU. I have been particularly impressed with the sheer energy and effort students have put into the projects. Further, I love their willingness to take the risks that underlie any research: the risks to explore a topic that may lead initially to dead-ends, the risks to explore areas that may go against the prevailing wisdom in a discipline, and the risks inherent in presenting findings for public scrutiny by others. All of these values have been abundant in the sessions I have attended.

I welcome all of you—student presenters and faculty sponsors, friends and family, and Dr. David Adams, our guest speaker—to this rich celebration of talent and effort. Thank you for being here today as together we recognize the excellence of our students and their research endeavors.

Sincerely,

Bill Robinson

The 2009 Spokane Intercollegiate Research Conference was planned by the following faculty

Philip Baldwin
Gregg Brekke
Deanna Ojennus
Kathryn Picanco
Peter Tucker
Nicholas Willis

Administrative Support: Martha Brown

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Conference Schedule

Saturday, April 25

8:30-10:30 Coffee and pastries in Avista Square

9-10:15 a.m.
- Session 1 – Weyerhaeuser 107
- Session 2 – Weyerhaeuser 203
- Session 3 – Weyerhaeuser 204
- Session 4 – Weyerhaeuser 205
- Session 5 – Weyerhaeuser 303
- Session 6 – Weyerhaeuser 304
- Session 7 – Weyerhaeuser 305

10:30-11:45 a.m.
- Session 8 – Weyerhaeuser 203
- Session 9 – Weyerhaeuser 204
- Session 10 – Weyerhaeuser 205
- Session 11 – Weyerhaeuser 303
- Session 12 – Weyerhaeuser 304
- Session 13 – Weyerhaeuser 305

12:00-12:40 p.m. – Lunch (by reservation) for participants, faculty sponsors and invited guests
Hixson Union Building, Multipurpose Room

12:45-1:30 p.m. – Keynote Speaker, Dr. David Adams, open to all conference participants
Hixson Union Building, Multipurpose Room

1:45-2:30 p.m.
- Session 14 – Poster Session, Weyerhaeuser 111

2:45-4:00 p.m.
- Session 15 – Weyerhaeuser 203
- Session 16 – Weyerhaeuser 204
- Session 17 – Weyerhaeuser 205
- Session 18 – Weyerhaeuser 103
- Session 19 – Weyerhaeuser 303
- Session 20 – Weyerhaeuser 304
- Session 21 – Weyerhaeuser 305
- Session 22 – Weyerhaeuser 302

4:15-5:30 p.m.
- Session 23 – Weyerhaeuser 203
- Session 24 – Weyerhaeuser 204
- Session 25 – Weyerhaeuser 303
- Session 26 – Weyerhaeuser 304
- Session 27 – Weyerhaeuser 305
- Session 28 – Weyerhaeuser 205

Conference Speaker

Keynote Address: "Questioning First Impressions: A Clinical Researcher's View of Exploring the World"

By Dr. David Adams

Why do research? For science and medicine, the answer may seem easy. A variety of successful discoveries can be used to argue for the utility of investment in research. In his 2008 State of the Union Address, then President Bush said, "To keep America competitive into the future, we must trust in the skill of our scientists and engineers and empower them to pursue the breakthroughs of tomorrow." President Barack Obama has stated "[…] we will ensure America's continued global leadership in scientific discoveries and technological breakthroughs. That is essential not only for our economic prosperity, but for the progress of all humanity." Despite the general acknowledgement of the potential of the work of scientists, public funding for research has fallen consistently over the last decade. The NIH Office of Extramural research reported a decline in NIH funding of medical research grants from 34 to 22 percent from 1999 to 2008. Other types of research foster debate. Legislation in the Omnibus Appropriations Act of 2009 included money for research into topics such as switch grass genetics and mosquito trapping. The appropriateness of such funding was argued in congress and in the press. On another level, there is the question of the value of research as a means of empowering individuals. It is arguable that the fundamental task of higher education is to teach critical thinking. Perhaps part of the role of research is to preserve the balance between our sense of wonder and the skepticism which allows us to refine our understanding of the world. Today's keynote address will explore the role of research for the individual and for our society.

Biographical Information

David Adams grew up in Western Washington before attending undergraduate school at Whitworth College (now University) from 1985 to 1989. While at Whitworth, he completed the usual pre-medicine requirements and graduated with a B.A. in English. An interest in a possible career in science prompted the pursuit of a second undergraduate degree in Biology at the University of Washington in Seattle. In 1991, David entered Medical School at the University of Washington and transitioned to the MD PhD program in 1992. His PhD work in the department of Molecular Biotechnology (now Genome Sciences) was completed in 1998 and medical school in 2000. He completed a pediatric residency in 2003 and a pediatric chief residency in 2004, both at the University of Maryland in Baltimore. In 2005, he began a genetics and biochemical genetics residency at the National Institutes of Health in Bethesda, Maryland. He stayed on at the NIH after the residency and is now a staff clinician in the National Human Genome Research Institute.

David's research interests include sialic acid glycobiology, glycosphingolipid storage disorders and oculocutaneous albinism (OCA). He has recently started a clinical protocol that brings volunteer participants with OCA to the Clinical Center at the National Institutes of Health. Participants are evaluated clinically and provide research materials to further the study of the natural history, biology and genetics of albinism.

The keynote address begins at 12:45 p.m. in the Hixson Union Building and is open to all conference participants.
Dr. Adams will also speak in Special Session 20 at 2:45 p.m. in Weyerhaeuser 304.

Schedule of Presentations and Poster Sessions

Session 1 9:00-10:15 a.m. Weyerhaeuser 107

Special Session

Anglo-Saxon Literature and Culture
Faculty Moderator: Melissa Sprenkle, Doug Sugano, Corliss Slack

1A Addie Estes: Tension in Soul and Body Literature: An Anglo-Saxon Chora
Faculty Sponsor: Melissa Sprenkle

1B Kyle Kamaiopili: An Expression of Angst in "The Seafarer": This Dead Life Hurries On
Faculty Sponsor: Melissa Sprenkle

1C Kathryn Pridgen: Cannibalizing Identities: The English and Their Hero
Faculty Sponsor: Melissa Sprenkle

Session 2 9:00-10:15 a.m. Weyerhaeuser 203

Biology

2A Linh Aven, Alex Mitchell: Gastrointestinal Profiling of Racing Sleddogs
Faculty Sponsor: Frank Caccavo

2B Kellene Bergen: Measuring the effect of host seed size on the spread of Pyrenophora semeniperda to Bromus tectorum
Faculty Sponsor: Julie Beckstead

2C Kirstie Keller: Broadcast Spawning: Effect Of Turbulent Processes On Fertilization Efficiency
Faculty Sponsor: Jillian Cadwell

2D Daniel Raible: Correlation Between Middle Cerebral Artery Velocity and Aerobic Exercise Using Leg Ergometry and Voluntary Breath Holding
Faculty Sponsor: Mike Sardinia

Session 3 9:00-10:15 a.m. Weyerhaeuser 204

General Submissions

3A Justine King: In House Discrimination: The Role of Race and Gender in Renting an Apartment in Spokane
Faculty Sponsor: Patricia Bruininks

3B Spencer Hensley, Stephanie Oswald: Green by Example: Models of Influence and Ecological Behavior
Faculty Sponsor: Anna Marie Medina

3C Jasmine Linabary: Getting the news online: Today's journalist and the Web
Faculty Sponsor: Jim McPherson

3D Shiloh Deitz: The Curitiba Model-Sustainable Solutions for the Developing World
Faculty Sponsor: John Yoder

Session 4 9:00-10:15 a.m. Weyerhaeuser 205

The Psychology of Human Behavior

4A Patsy Marshall: Bibliotherapeutic Intervention: Impact on Empathy Development
Faculty Sponsor: Lisa Laurier

4B Sarah Arpin, Pamela Baula: Anticipatory Savoring
Faculty Sponsor: Monica Bartlett

4C John Ingels, Kristin Macauley: Mild Stress and Memory
Faculty Sponsor: Anna Marie Medina

4D Whitney Rostad, Paige Hurtig-Crosby: Parents in the Dorm Room
Faculty Sponsor: Anna Marie Medina

Session 5 9:00-10:15 a.m. Weyerhaeuser 303

Special Session

Jane Austen: gender, film and literature
Faculty Moderator: Laura Bloxham

5A Heather Wallace: The Tragedy of Elinor: The Interplay of Civility and Morality in Sense and Sensiblity
Faculty Sponsor: Laura Bloxham

5B Angela Forney: Elizabeth Bennet: Heroine or Traditional Hero?
Faculty Sponsor: Laura Bloxham

5C Charity Whitney: The Rejection of Gender Essentialism in Pride and Prejudice
Faculty Sponsor: Laura Bloxham

5D Mary Rump: Military Merit and Aristocratic Marriage
Faculty Sponsor: Laura Bloxham

5E Samantha Keenan: Shergold's Unpersuasive Anne
Faculty Sponsor: Laura Bloxham

Session 6 9:00-10:15 a.m. Weyerhaeuser 304

Applications and Impacts of Technology

6A David Sprenkle: From Arrays to Bitmaps: Different Approaches to Handling Board Representations in Computer Chess Programs

Faculty Sponsor: Susan Mabry

6B Emily O'Dean: Towards Creating a Dynamic Model through the Transcription and Analysis of Live Performance Data and Computed Musical Scores
Faculty Sponsor: Peter Tucker

6C Jason Heide: De-Improvisation – Conversion Algorithms for Difficult Musical Phrases on Harmonic Instruments
Faculty Sponsor: Peter Tucker

6D John Maxwell: Technology and Its Impacts On Encounters with Nature and Outdoor Adventure
Faculty Sponsor: Kirk Besmer

Session 7 9:00-10:15 a.m. Weyerhaeuser 305

Marketing

7A Mary Rupert: Correlations Between Donor Participation and Caller Personalities in Charitable Giving Calls
Faculty Sponsor: Brad Sago

7B Justin Hancock: The Effectiveness of Advertising to Specifically Targeted Audiences on Facebook
Faculty Sponsor: Brad Sago

7C Tami Dixon: CEO Compensation Structure in the U.S. and Abroad as Viewed within the Context of Hofstede's Cultura
Faculty Sponsor: Craig Hinnenkamp

7D Calvin Jurich: The growing availability of purchasing textbooks online and how it influences a buyer's motivations and perceptions compared to purchasing textbooks through the college bookstore.
Faculty Sponsor: Brad Sago

7E Stephanie Wipf: How the use of Celebrity Affiliations Effect Brand Preferences among Traditional College-Age Students
Faculty Sponsor: Brad Sago

Session 8 10:30-11:45 a.m. Weyerhaeuser 203

Mathematics

8A Taeko Yoneyama: Analysis and Projection of the North Magnetic Pole Movement
Faculty Sponsor: Richard Bishop

8B Laura Robison, Katherine Carpenter: A Mathematical Model of Seeding Percentage in the Siberian Wallflower
Faculty Sponsor: Nicholas Willis

8C William Sehorn: An Introduction to Elliptic Curve Cryptography
Faculty Sponsor: Donna Pierce

8D Kevin Sonnanburg: Pastries and Rocket Science
Faculty Sponsor: Nicholas Willis

Session 9 10:30-11:45 a.m. Weyerhaeuser 204

Special Session

Interpersonal Communication in Initial Interactions, Long-Distance Relationships, and Cross-Sex Friendships
Faculty Moderator: Joe Vigil

9A Ninita Sporseen, Aaron Quigley, Sarah Tunall: I Won't Forget You! Memorable Characteristics in Initial Interactions
Faculty Sponsor: Alan Mikkelson

9B Jasmine Linabary, Tim Takechi: Communication of Affection in Cross-Sex Friendships
Faculty Sponsor: Alan Mikkelson

9C Chris Caldwell: Communication Channel use in Long-Distance and Proximal Romantic Relationships
Faculty Sponsor: Alan Mikkelson

Session 10 10:30-11:45 a.m. Weyerhaeuser 205

Chemistry

10A Arianna Demmerly: Synthesis and characterization of ReCl(CO)3(47-dihydroxy-110-phenanthroline) and Re(OTf)(CO)3(47-dihydroxy-110-phenanthroline)
Faculty Sponsor: Kerry Breno

10B Pamela Anderson: Oxidizing 47-dimethyl-110-phenanthroline for Use as a Ligand
Faculty Sponsor: Kerry Breno

10C Erin Cooley: Synthesis of Mo(47-dihydroxy-110-phenanthroline)(1-n3-2-butene)(CO)2OH
Faculty Sponsor: Kerry Breno

10D Ryan Cloke: Volumes of Overlapping P-Orbitals of Interest to the Organic Chemist
Faculty Sponsor: Matthew Cremeens

Session 11 10:30-11:45 a.m. Weyerhaeuser 303

Continuation of Special Session 5

Jane Austen: gender, film and literature
Faculty Moderator: Laura Bloxham

Session 12 10:30-11:45 a.m. Weyerhaeuser 304

Politics Across the Atlantic

12A Luis Lopez: And I Approve This Message: An Examination of Negative Advertising During Political Campaigns
Faculty Sponsor: John Yoder

12B Megan Houlihan: A New Electoral System for Westminster?
Faculty Sponsor: Matt Cole

12C Marissa Johnson: When push comes to shove
Faculty Sponsor: Dale Soden

Session 13 10:30-11:45 a.m. Weyerhaeuser 305

Marketing

13A Allison Spencer: The Influence of Premiums in Pharmaceutical Marketing on Medical Decision-Making from a Physician's Perspective
Faculty Sponsor: Brad Sago

13B Lindsay Dalby: Attracting Middle to High school aged students to participate in sports organizations through marketing channels and promotions
Faculty Sponsor: Brad Sago

13C Katrina Bayens: The Effectiveness of Commercials Shown during Television Shows Broadcasted on the Internet by Traditional Age University Students
Faculty Sponsor: Brad Sago

13D Adrian Grissom: Aesthetics Effect on Premium Pricing in Fine Dining Establishments
Faculty Sponsor: Brad Sago

Session 14 1:45 a.m.-2:30 p.m. Weyerhaeuser 111

Poster Presentations

14A Paige Hurtig-Crosby: Parents in the Dorm
Faculty Sponsor: Anna Marie Medina

14B Jessica Alexander: Light preference and responses of Henricia leviuscula to varied light conditions
Faculty Sponsor: Craig Tsuchida

14C Erik Frandsen, Leah Schwiesow, Kristen Weakly, Matt Velinder: Development of protein probes to measure Ca2+ in the chloroplast stroma and thylakoid lumen
Faculty Sponsor: William Ettinger

14D Jessica Smalley: Influence of water velocity on the moving speeds of different species of Nudibranchia
Faculty Sponsor: Craig Tsuchida

14E Emily Whitney: The influences of foot size and species on the attachment strength of limpets
Faculty Sponsor: Craig Tsuchida

14F Awbrey Gilliam: The aggressive behavior between clonemates and non-clonemates of Anthopleura elegantissima
Faculty Sponsor: Craig Tsuchida

14G Alyson Shaffer, David Ellis: The Duration of Positive Effects of Hippotherapy on Cerebral Palsy
Faculty Sponsor: Mike Sardinia

14H Benjamin Moresco: The relationship between substrate type and rate/depth of burrowing as seen in Cancer magister
Faculty Sponsor: Craig Tsuchida

14I Benjamin Moresco: Implications of Waste Treatment Discharge on the Health of Rana pipiens
Faculty Sponsor: Mike Sardinia

14J Daniel Bergman: Influence of water flow in habitat selection of the nudibranch Dirona aurantia as studied on San Juan Island
Faculty Sponsor: Craig Tsuchida

14K Matthew George: Biomechanical and Morphological Variation in Stomatopod Cuticle
Faculty Sponsor: Brook Swanson

14L Chase Talbot: Effects of tidal and temperature changes on the intertidal location selection of Anthopleura Elegantissima as studied on San Juan Island
Faculty Sponsor: Craig Tsuchida

14M Derek Weyhrauch: 16S rRNA Sequence Analysis of Caedibacter varicaedens ssp. 7
Faculty Sponsor: Finn Pond

14N Daniel Raible, Daniel Repsold: Correlation Between Middle Cerebral Artery Velocity and Aerobic Exercise Using Leg Ergometry and Voluntary Breath Holding
Faculty Sponsor: Mike Sardinia

14O Chris Baldwin: The relationship between expense ratio and total amount of money donated to non-profit organizations.
Faculty Sponsor: Brad Sago

14P Brian Harms, Jesse Spaun: Biochemical characterization of yeast vacuolar ATPase protein subunits E and G
Faculty Sponsor: Deanna Ojennus

14Q Kathleen Lilleness: Reducing 18O/16O Back-exchange to Improve Labeling and Quantitation of RNA
Faculty Sponsor: Deanna Ojennus

14R Matt Delsman: Using 1H and 13C NMR in Determining the Structure of Acylated Proline
Faculty Sponsor: Matthew Cremeens

14S Andrew Durgan: Neuropeptide Signaling: Analysis of Proline
Faculty Sponsor: Matthew Cremeens

14T Holly Dembinski: Cloning and Expression of Putative Class II HMG-CoA Reductase from Burkholderia cenocepacia
Faculty Sponsor: Jeffrey Watson

14U William Ohlstrom: Synthesis of Pantetheine Substrate Analogues of Class II HMG-CoA Reductase
Faculty Sponsor: Jeffrey Watson

14V Daniel Raible: Synthesis of Hydrophobically Modified Nucleobases to Enhance Cellular Uptake of Antisense Oligonucleotides
Faculty Sponsor: Deanna Ojennus

14W Katrina Hauck: I Saw Mommy Kissing Santa Claus: A Study of Relationship Mirroring and Satisfaction in Young Adults
Faculty Sponsor: Noelle Wiersma

14X Giselle Cunanan: The Sex Current: Sexual Attitudes and Beliefs of College Students and the Trends of their Sexual Behavior
Faculty Sponsor: Vikas Gumbhir

14Y Kayla Maddy, Kari Lanham, Amy Watts: The Effects of Preferred Reward on Using an Augmentative Communication Device with a High School Student Diagnosed with Cerebral Palsy
Faculty Sponsor: Betty Fry WIlliams

14Z Zennetta Mann, Katherine Shaw: Effects of Direct Instruction Flashcard and Reading Racetrack Procedures on Reading Core Words by Two Students with Disabilities
Faculty Sponsor: Randy L. Williams

14AA Kellen Oetgen, Mahyo Seyedali: Parametric Investigation of Lithium Plasma Thruster Performance on Mars Cargo Missions
Faculty Sponsor: Kamesh Sankaran

14AB Isaac Lutz, Karolynn Tom: R-body Expression for Structural Analysis by NMR
Faculty Sponsor: Deanna Ojennus

14AC John Hauck: Prussian blue-modified electrode as an electrochemical sensor for atmospheric hydrogen peroxide
Faculty Sponsor: Drew Budner

14AD James Lagucik: Wirebased Electrochemical Detection of Hydrogen Peroxide
Faculty Sponsor: Drew Budner

Session 15 2:45-4 p.m. Weyerhaeuser 203

Gender and the Family in Cultural Contexts

15A Julie Depner: From Bridget Jones to Bella Swan: Chick-lit and the Guise of Female Empowerment
Faculty Sponsor: Vikas Gumbhir

15B Katherine Tremayne: La familia chilena: An exchange student's observations of the Chilean family unit

Faculty Sponsor: Angeles Aller

15C Pamela Anderson: The Mexican Woman: A study of change and turbulence in the context of Machismo
Faculty Sponsor: Angeles Aller

15D Zachariah Mullen: Middle Age(s) Disparity in Marriage: Definitions Overcome and Authority Gained
Faculty Sponsor: Doug Sugano

Session 16 2:45-4 p.m. Weyerhaeuser 204

Religious Perspectives and Their Implications for U.S. Society

16A Heather Stevens: A Critique of a Naturalist's Perspective on Religion: James Dewey Niebuhr and Tocqueville
Faculty Sponsor: Gerald Sittser

16B Lucas Sharma: Red Blue or Purple? Values and Voting among College Catholics
Faculty Sponsor: Matthew Bahr

16C Sarah Huyck: Strange Bedfellows: The Relationship Between Evangelical Christianity and Conservative Politics
Faculty Sponsor: Gerald Sittser

Session 17 2:45-4 p.m. Weyerhaeuser 205

Race and Space in a Modern City
17A Andrea Mason: Predictions of the Social Spatial Organization of Spokane and its Neighborhoods: The Concentric Zone Theory
Faculty Sponsor: Jennifer Holsinger

17B Nicole Geiger: Urban Growth and Who is Living Where in Spokane
Faculty Sponsor: Jennifer Holsinger

17C Kendria Dickson, Jeremiah Sataraka: Primary Social Ties in a Modern-Day City: A Case Study of the Chief Garry Park Neighborhood
Faculty Sponsor: Jennifer Holsinger

17D Kelly Birch: Staying within the Lines: The Salvadoran Education System as a Contributor to a "Coloring Book" Imagination
Faculty Sponsor: Vikas Gumbhir

Session 18 2:45-4 p.m. Weyerhaeuser 103

Special Session

Evidence of Learning in Student Voice
Faculty Moderator: Kathryn Picanco

Panel: Michelle Bowzer, Randy Deganhardt, Kira Lazore, Angie Mossey, Aaron Ruff, Amber Smith, Diana Termer

Session 19 2:45-4 p.m. Weyerhaeuser 303

Special Session

Gender Performance in Victorian Literature and Culture
Faculty Moderator: Pamela Corpron Parker

19A Mary Rump: The Wages of Womanly Sin in Victorian Literature
Faculty Sponsor: Pamela Corpron Parker

19B Josh Swayne: The Manly Man Can't: Robert Audley's Viable Manhood
Faculty Sponsor: Pamela Corpron Parker

19C Bailey Cavender: The Anti-Heroine in Victorian Literature
Faculty Sponsor: Pamela Corpron Parker

19D Justin Lindborg: Doomed Actresses in *Mill on the Floss* and *Lady Audley's Secret*
Faculty Sponsor: Pamela Corpron Parker

Session 20 2:45-4 p.m. Weyerhaeuser 304

Special Topics
Guest Speaker: David Adams

20A Oculocutaneous Albinism

20B Planning Careers in Graduate and Medical Education

Session 21 2:45-4 p.m. Weyerhaeuser 305

Medical Agents and Autism

21A Zachary Hunter: Smart Medical Agents
Faculty Sponsor: Susan Mabry

21B Kayla Lewis: Autism "Agents"
Faculty Sponsor: Susan Mabry

21C Alice Clawson: Smart Med Agents: Standardizing Diagnosis and Treatment of Autism Spectrum Disorders Via Agent-Based Clinical Decision Support
Faculty Sponsor: Susan Mabry

21D Marcus Hagerott: Smart Med Agents
Faculty Sponsor: Susan Mabry

Session 22 2:45-4 p.m. Weyerhaeuser 302

Language, Linguistics and Literature in Cultural Contexts

22A Kelsey Toy: Du Bellay's Defense and the Renaissance in France
Faculty Sponsor: Bendi Benson Schambach

22B Megan French: A Sociolinguistic Study of the French of Quebec and France
Faculty Sponsor: Bendi Benson Schrambach

22C Chelsea Leahy: The Literary Evolution of French Theatre
Faculty Sponsor: Bendi Benson Schrambach

22D Hailey Johnson: Tristan & Isolde: A Legend Across the Ages
Faculty Sponsor: Bendi Benson Schrambach

22E Amanda Moos: Horacio Quiroga: A Life Reflected Through Story
Faculty Sponsor: Angeles Aller

Session 23 4:15-5:30 p.m. Weyerhaeuser 203

Computer Science Potpourri

23A Eric Fode, Nathan Sargent: CODONS
Faculty Sponsor: Kent Jones

23B Stephanie Reardon: Designing for Testability in Software/Hardware Co-Design Systems
Faculty Sponsor: Peter Tucker

23C David Jackson: Query Operator Scheduling in Data Stream Management Systems with Genetic Algorithms
Faculty Sponsor: Peter A. Tucker

23D Tyler Carrington: Network Benchmark Comparison in Linux
Faculty Sponsor: Patricia Crowley

Session 24 4:15-5:30 p.m. Weyerhaeuser 204

History

24A Kurt Guner: The Subaltern Speaks but in what language? Turkish Modernization through Modern and Postmodern Lexicons
Faculty Sponsor: Eric Cunningham

24B Jason Hogstad: Origins of Racism
Faculty Sponsor: Arlin Migliazzo

24C Mark Trivett: Pacific Northwest Right Wing Extremism and Federal Efforts to Combat It
Faculty Sponsor: Fr. Michael Maher, S.J.

Session 25 4:15-5:30 p.m. Weyerhaeuser 303

Dance and Theatre in Society

25A Caitlin McKenna: Dancing with the Enemy: Spatial and Symbolic Boundary Maintenance in Social Dance
Faculty Sponsor: Vikas Gumbhir

25B Shawna Nordman: TV Dinner
Faculty Sponsor: Diana Trotter

Session 26 4:15-5:30 p.m. Weyerhaeuser 304

Policies and Practices in Higher Education

26A Christa Zinke: Transfer Students: Nomads of Academia
Faculty Sponsor: Matthew Bahr

26B Charles Loeffler: Doing Right: A History of Behavior Policies at Whitworth
Faculty Sponsor: Raja Tanas

26C Geoffrey Glenn: Taking Academia to Municipal Government: The Challenges In Collaborative Research Projects
Faculty Sponsor: Vikas Gumbhir

26D Jeremy Molinaro: Paulo Freire: Development through Education
Faculty Sponsor: Kim Hernandez

Session 27 4:15-5:30 p.m. Weyerhaeuser 305

Marketing

27A Kelly Baker: "The effectiveness of in-store samples on the purchasing behaviors of consumers among 18-23 years old and 35-55 years old"
Faculty Sponsor: Brad Sago

27B Stephen Stockton: The effectiveness of an athlete endorser on the sale of popular sports drinks to the traditional college-aged student market?
Faculty Sponsor: Brad Sago

27C Porsha Fosse: The effects that reality television dance shows have on dance department and dance studio attendance.
Faculty Sponsor: Brad Sago

Session 28 4:15-5:30 p.m. Weyerhaeuser 205

Special Session

Teaching Sustainability
Faculty Moderator: Kathryn Picanco

28A Mya Brooks: Sustainable Design Curriculum
Faculty Sponsor: Kathryn Picanco

28B Gina Baughn: Environmental Education Opportunities in Spokane
Faculty Sponsor: Kathryn Picanco

List of Abstracts (in order of presentation)

Special Session 1
"Anglo Saxon Literature and Culture"
Faculty Moderators: Melisa Sprenkle, Doug Sugano, Corliss Slack

This session will offer presentations of research projects exploring current problems of literary interpretation, cultural understanding and/or history of the Anglo-Saxon period in England (400-1066 C.E.).

1A
"Tension in Soul and Body Literature: An Anglo-Saxon Chora"
Addie Estes
Faculty Sponsor: Melissa Sprenkle

1B
"An Expression of Angst in 'The Seafarer': This Dead Life Hurries On"
Kyle Kamaiopili
Faculty Sponsor: Melissa Sprenkle

1C
"Cannibalizing Identities: The English and Their Hero"
Kathryn Pridgen
Faculty Sponsor: Melissa Sprenkle

Abstract 2A
"Gastrointestinal Profiling of Racing Sleddogs"
Linh Aven, Alex Mitchell

Racing sled dogs are the ultimate endurance athletes. These dogs obtain the energy they need solely through their diet, and therefore they must have a healthy gastrointestinal microbiota. To maximize performance it would be helpful to understand the microbial constituents of the sled dog gastrointestinal system. Most studies of the canine gastrointestinal system use highly invasive surgical procedures. This study developed two, complimentary, non-invasive methods to generate microbial gastrointestinal profiles of racing sled dogs. A cultural method employed colony counts on canine fecal samples on a variety of selective and differential anaerobic and aerobic media. A molecular method generated genetic fingerprints from the same fecal samples. The resulting microbial profiles suggested that the gastrointestinal microbiota of a dog changes with time and varies between related dogs. These results also demonstrate the effectiveness of non-invasive procedures for examining animal intestinal tracts, which could prove useful in veterinary science and exercise physiology studies.

Faculty Sponsor: Frank Caccavo

Abstract 2B
"Measuring the effect of host seed size on the spread of Pyrenophora semeniperda to Bromus tectorum"
Kellene Bergen

The naturally occurring seed pathogen P. semeniperda is commonly encountered in shrub-steppe ecosystems and is an important player in seed bank dynamics. Studies have shown that this seed pathogen has a wide host range. Host seeds vary in their size and their available resources for P. semeniperda. Our study aims to determine whether these hosts are equally effective in providing resources for P. semeniperda allowing it to

infect adjacent seeds. We selected seven host seeds that varied in size and inoculated all with P. semeniperda. The infected hosts were then placed between two uninfected adjacent bioassay seeds. Results showed that there was a negative correlation between size of the host seed and ability of P. semeniperda to infect adjacent seeds ($R2 = 0.72$; $P = .004$). Surprisingly small seeds were optimal hosts for P. semeniperda allowing it to infect adjacent seeds.

Faculty Sponsor: Julie Beckstead

Abstract 2C
"Broadcast Spawning: Effect Of Turbulent Processes On Fertilization Efficiency"
Kirstie Keller

Assessing fertilization efficiency in broadcast spawning systems provides insight into physical mechanisms. Various numerical modeling approaches have been used to investigate the role of turbulent stirring on fertilization efficiency. However these models fail to incorporate variables such as oocyte size and viability sperm-to-egg contact times sperm longevity and sperm velocity. This study investigates the effect of Peclet number and the initial geometry of egg and sperm. Gamete sets are introduced into the flow model and the resulting fertilization rate is calculated for a variety of initial placements within the model domain. Results indicate that vortex structure imposes spatial correlations on initially non-overlapping gamete sets which increases potential fertilization rates. Inclusion of both realistic physical and biological variables allow for a clearer and more accurate understanding of mechanisms of evolutionary development ozone mixing and soil pollution effects.

Faculty Sponsor: Jillian Cadwell

Abstract 2D
"Correlation Between Middle Cerebral Artery Velocity and Aerobic Exercise Using Leg Ergometry and Voluntary Breath Holding"
Daniel Raible

Strokes are the leading cause of long-term disability in America. In an effort to improve the quality of life for these patients the American Heart Association has designed exercise rehabilitation programs. However such activity in terms of cerebral blood flow changes is not well known. Here we increase oxygen demands in the brain bye exercise and breath holding looking at mean flow velocity (MFV) in the middles cerebral artery (MCA). The exercise consisted of a bike following the YMCA Cycle Ergometer Protocol. It was found that both breath-holding and exercise produced an increase in MFV and even though a subject's HR was much greater during exercise MFV was greater at the end of breath-holding. These findings suggest that the increase in MFV within the MCA during moderate exercise is due to increase stroke volume and not vasodilatation and thus a blood steal would be unlikely to occur.

Faculty Sponsor: Mike Sardinia

Abstract 3A
"In House Discrimination: The Role of Race and Gender in Renting an Apartment in Spokane"
Justine King

Discrimination in housing has been looked at and addressed multiple times throughout history. Looked at through the lens of the Fair Housing Act that prohibits discrimination in the lease sale or rental of housing on the basis of race color religion sex familial status or national origin we will seek to determine the levels of discrimination found in various high and low income apartments in downtown Spokane. This study will

specifically explore the question: "Is there a relationship between a college-aged persons race (African-American Latino Caucasian) and gender and their ability to receive fairness in the apartment renting process in Spokane." With the findings from this study we hope to inform and enlighten the people of Spokane of the levels of discrimination or lack of within the apartment rental process in hope that fairness is shown to all.

Faculty Sponsor: Patricia Bruininks

Abstract 3B
"Green by Example: Models of Influence and Ecological Behavior"
Spencer Hensley, Stephanie Oswald

Green by Example: Models of Influence and Ecological BehaviorWe examined models of influence on ecological behavior. Participants filled out a Word Find that contained either ecology-related words (priming condition) or neutral words. Participants also observed a confederate either recycling or throwing away a paper that participants were instructed to dispose of (modeling condition). We then examined the effect of priming and modeling in relation to whether participants threw away or recycled their sheet of paper. Results indicated only a main effect for modeling. Neither a main effect for modeling nor an interaction effect for priming and modeling were detected.

Faculty Sponsor: Anna Marie Medina

Abstract 3C
"Getting the news online: Today's journalist and the Web"
Jasmine Linabary

Its a standard saying in journalism that journalists don't like math but the numbers facing the news industry right now are hard to ignore. The total number of layoffs and buyouts at U.S. newspapers for 2008 reached more than 15,000 according to St. Louis Post-Dispatch news designer Erica Smiths Paper Cuts site which tracks news of newspaper layoffs. While the definition of journalism remains the same defining who a journalist is and what his or her roles are has become more complex. The emergence of the Internet has resulted in increased expectations for journalists that are still taking form across the United States. For those looking to go into the field right now adopting new skills sets may not be a matter of choice but of necessity.

Faculty Sponsor: Jim McPherson

Abstract 3D
"The Curitiba Model-Sustainable Solutions for the Developing World"
Shiloh Deitz

The urban planning model of Curitiba, Brazil serves as a feasible model for the developing cities of Latin America. Curitiba has fulfilled the United Nations Agenda 21: Chapter 7 millennium goals in ways that are practical and could be applied to other developing cities of Latin America. Using these land, water and energy management goals as a guideline with the case study of Tegucigalpa, Honduras, evidence points to the conclusion that Curitiba is a successful and exportable model for sustainable human settlement.

Faculty Sponsor: John Yoder

Abstract 4A
"Bibliotherapeutic Intervention: Impact on Empathy Development"
Patsy Marshall

This study examines the social phenomenon of relational aggression and its relationship to empathy. Group bibliotherapy is used as an intervention strategy designed to reduce the level of relational aggression and increasing the level of empathy. It is hypothesized that through the use of group bibliotherapy sessions conducted with adolescent girls in this study individual levels of empathy will be increased with a corresponding decrease in individual levels of relational aggression. Participants will be administered measures of empathy and relational aggression prior to and at the conclusion of the proposed intervention in order to determine if the effects of the intervention have succeeded in producing significant change in the pre-intervention scores of the participants. Significant change in scores will strongly suggest that group therapy combined with Bibliotherapy is a viable and effective intervention strategy to mitigate against relational aggression in adolescent girls.

Faculty Sponsor: Lisa Laurier

Abstract 4B
"Anticipatory Savoring"
Sarah Arpin, Pamela Baula

This study examined the positive effects that anticipatory savoring has on an upcoming event (i.e. spring break for undergraduate students). Theory suggests that consciously attending to what might be positive about an upcoming event should lead to more enjoyment of the actual event. Participants were assigned to one of three different journaling conditions (i.e., savoring neutral or contrast) in which they wrote about their expectations for their upcoming spring break 7 days prior to their vacation. Participants were called toward the end of their spring breaks and asked to report their actual enjoyment of their vacation. We hypothesized that those in the savoring condition (writing about what could be positive during the break) would experience more positivity toward their vacation than those in the neutral (listing off every-day activities they would do during the break) and those in the contrast (writing about what could go wrong during the break) conditions.

Faculty Sponsor: Monica Bartlett

Abstract 4C
"Mild Stress and Memory"
John Ingels, Kristin Macauley

What impact does mild stress have on our ability to learn verbal material? In our study participant groups experienced either no stress a mild post-learning stressor or mild pre- and post-learning stressors and we compared the verbal recall abilities across these three groups. Although results did not reach significance the means increased across the stress groups as hypothesized. Reasons for non-significant results are considered and proposals for future research along these lines are offered.

Faculty Sponsor: Anna Marie Medina

Abstract 4D
"Parents in the Dorm Room"
Whitney Rostad, Paige Hurtig-Crosby

We examined the effects of early experiences with primary caregivers on behavior in close personal relationships in college. Self-report questionnaires were used assessing social desirability social assertiveness parental rejection and depression. Significant correlations were detected between parental coldness and social assertiveness. However linear regression analyses suggested that depression moderated this association.

Faculty Sponsor: Anna Marie Medina

Special Session 5
"Jane Austen: gender, film and literature"
Faculty Moderator: Laura Bloxham

Abstract 5A
"The Tragedy of Elinor: The Interplay of Civility and Morality in Sense and Sensiblity"
Heather Wallace

Jane Austen's Regency society provided limited options for women and for her women characters. This essay examines the situations of Elinor and Marianne Dashwood from Sense and Sensibility. Juxtaposed with Aristotle's theory of virtue, the novel's portrayal of the two sisters presents an uncomfortable truth about the role of virtue in women's lives. Elinor and Marianne are held to a standard of civility rather than a standard of virtue. Their options to navigate social requirements restrict them to an expression of manners that does not allow them to pursue full eudaimonia, the blessed life that Aristotle situates as the goal of virtue.

Faculty Sponsor: Laura Bloxham

Abstract 5B
"Elizabeth Bennet: Heroine or Traditional Hero?"
Angela Forney

Mr. Elizabeth Bennet is a gender analysis of Jane Austen's Pride and Prejudice. The paper explores the character of Elizabeth Bennet and the traditional interpretation of her as the novel's heroine. It argues that Elizabeth more fits the role of a traditional hero than that of a heroine and examines her sibling and marital relationships in order to prove that the idea of female submissiveness is obsolete. The paper concludes by making the claim that Jane Austen was in fact a forerunner in modern feminism.

Faculty Sponsor: Laura Bloxham

Abstract 5C
"The Rejection of Gender Essentialism in Pride and Prejudice"
Charity Whitney

In Pride and Prejudice, Jane Austen rejects the theory of gender essentialism. Essentialism, as applied to gender, asserts that men and women are determined to be naturally different in character and personality due to inherent biological differences. This determinism based on sex is clearly and consistently rejected in Austen's most popular work by means of style, character, and dialogue. From the first line of the novel, Austen casts doubt on the validity of stereotypical gender determinations; from the first chapter, she establishes the heroine as unconfined by these same stereotypes.

Faculty Sponsor: Laura Bloxham

Abstract 5D
"Military Merit and Aristocratic Marriage"
Mary Rump

This paper looks at the discussion over the changing social status of the military and how that issue is treated in the novel Persuasion by Jane Austen and the 1995 adaptation of the novel by Roger Mitchell. Specifically, because class structure and social mobility form the background to the action in both the novel and the film, the trajectory of Anne and Captain Wentworth's relationship becomes a way to reflect the tension between the military and the ancestral gentry and emphasize a change in the social hierarchy. First looking at the setting, buildings, and cities chosen in the film adaptation, the merit and changing status of the military is exemplified while the ancestral and elite status of the gentry is undermined. With respect to the novel, it is in the character development that this difference is examined. Not only are there no unsavory military characters to be found within the pages of Persuasion, but there are few, if any, good aristocratic men within the novel. Both the setting and character development serve as a backdrop for the relationship between Anne and Captain Wentworth. In order for Anne, a member of the gentry, and Wentworth, a member of the military, to be on an equal enough footing to wed, their respective social standings must be brought close enough together for the match to be suitable. Though Anne started in a place of social superiority at the time of their first meeting, eight years between the opening of the novel, by the time the novel opens, Anne's family has been forced to retrench and move to bath and Wentworth has made a fortune in the war. Because the statuses are more comparable and fortune can be equated with status, a mark of the changing social structure, the romance can take place.

Faculty Sponsor: Laura Bloxham

Abstract 5E
"Shergold's Unpersuasive Anne"
Samantha Keenan

Jane Austen was near the end of her life when she penned her final novel, Persuasion, a moving story of young love lost, regretted, and eight years later acknowledged and rekindled. This paper seeks to critique Adrian Shergold's 2007 film adaptation of the novel, by attempting to prove that the production does not capture the beautiful and intricate romance between Captain Wentworth and Anne Elliot. Although the two lovers reunite in the end, the needed steps are not taken to develop Anne's growing strength of character throughout the film. The modernization, speed, and lack of important dialogue in the film lead to a shallow portrayal of what scholars call Austen's "most mature, thoughtful, and selfless heroine."

Faculty Sponsor: Laura Bloxham

Abstract 6A
"From Arrays to Bitmaps: Different Approaches to Handling Board Representations in Computer Chess Programs"
David Sprenkle

Computer chess programmers use a surprising range of methods from simple 8 x 8 arrays to multiple 64 bit bitmaps for storing data about the board and the state of the pieces. This wprk surveys approaches to board representation in a range of commercial and academic chess programs to suggest the consensus which is emerging about how best to handle board representation given the particular computing environment.

Faculty Sponsor: Susan Mabry

Abstract 6B
"Towards Creating a Dynamic Model through the Transcription and Analysis of Live Performance Data and Computed Musical Scores"
Emily O'Dean

This presentation outlines an approach to begin the process of creating an expressive model in music through the comparison of live versus computed performances. Live piano samples are converted into musical notation format. Another set of samples of the same pieces of music is directly inputted into a music notation program. The samples are evaluated at a note level and a structural dynamic level. Music will be analyzed by observing which performers and eras of music can be accurately transcribed and closely match the computer performances. This process allows elements of interpretative dynamics and expression to be evaluated and different genres and artists to be ranked by predictability and originality of expression. Patterns of human performers will be observed through the comparison of an interpretive live performance with a flat computed performance and through the examination of aspects that are not correctly transcribed an expressive model can ultimately be created.

Faculty Sponsor: Peter Tucker

Abstract 6C
"De-Improvisation – Conversion Algorithms for Difficult Musical Phrases on Harmonic Instruments"
Jason Heide

A musician's interpretation is paramount to the success of the performance of any piece of music. Each performance is unique containing slight nuances which make the piece come to life. Transcription of such nuances onto sheet music would be a valuable tool for both teachers and students. However some performers' nuances cannot be transcribed using current algorithms. Simple techniques such as chording and harmonics result in difficult transcription due to note grouping and high frequencies. Counterpoint and accompaniments create noise which can distort the main voice. We are investigating which of the nuances and techniques are the most difficult in order to develop a more comprehensive transcription algorithm. Such an algorithm will allow for a more efficient and accurate means of deciphering the techniques of a desired performer on most harmonic instruments.

Faculty Sponsor: Peter Tucker

Abstract 6D
"Technology and Its Impacts On Encounters with Nature and Outdoor Adventure"
John Maxwell

Modern adventures are taking drastically different forms as new inventions such as the GPS and the satellite phone transform the way in which we now explore the last blank points of the globe. The thought that we are caught in a negative trend of limitless adventure brought about by recent advances in technology has never been more striking. Moreover it can leave modern adventurers wondering how these advances are impacting the way we now encounter wilderness in our society.The purpose of this presentation is to give philosophical explanations to the questions arising out of the claims on the impacts of technology on our sense of adventure and engagement with wilderness. By applying supporting claims from famous philosophers such as Martin Heidegger and Albert Borgmann and useful personal scenarios conclusions can be drawn about how technology is impacting outdoor adventure and true engagement with the natural world and what if anything should be done about it.

Faculty Sponsor: Kirk Besmer

Abstract 7A
"Correlations Between Donor Participation and Caller Personalities in Charitable Giving Calls"
Mary Rupert

One way that many non-profits organizations raise funds is telemarketing. The concern of this research is to examine how receptive donors are to different personality types of solicitors over the phone. This research focuses on university undergraduate alumni and how they respond to solicitations by callers of different personality types. Is there is a correlation between the personality types a caller posses and the caller's success rates with donors? Non-profit organizations can use this information in training script writing and hiring. The research was done by asking callers to complete a personality test. This data was analyzed with their complete calling results. Call results include information such as participation total no-pledges and other information. The results of the caller's personality tests were compared to their call results to find correlations.

Faculty Sponsor: Brad Sago

Abstract 7B
"The Effectiveness of Advertising to Specifically Targeted Audiences on Facebook"
Justin Hancock

As Facebook eclipsed the 175 million active accounts in early 2009 companies began to pay more attention to the advertising capabilities of the social networking site. Users reveal information on their profile pages – favorite movies, music, books, and interests – that advertisers use to create customized advertisements to target specific markets of users. The goal of this research was to determine if users notice advertisements on Facebook and which placements are most effective at grabbing the user's attention. A study was conducted in which required users were asked to recall specific advertisements they were exposed to on Facebook. The study examined what types of advertisements were most noticeable (such as location graphic or text advertisement) and whether users actually purchased any products as a result of the advertisements on Facebook.

Faculty Sponsor: Brad Sago

Abstract 7C
"CEO Compensation Structure in the U.S. and Abroad as Viewed within the Context of Hofstede's Cultura"
Tami Dixon

Although CEO compensation figures over the past few decades have come under intense scrutiny and criticism the United States stands out among developed nations as having a greater tolerance for maintaining these high pay packages. The rising level of disparity between executive and worker pay is not a problem unique to the U.S. but is being viewed and dealt with in different ways in many other nations. This research attempts to look at the issue of executive compensation as it is tolerated or not-tolerated in several different cultures through the lens of Hoftstede's four cultural dimensions. This comparison then illustrates the reasons why U.S. culture would be more tolerant of a business structure that its citizens view as negative than would inhabitants of other nations where less disparity is tolerated. The research concludes with some brief suggestions of an alternative to this structure based on a change in leadership perspective.

Faculty Sponsor: Craig Hinnenkamp

Abstract 7D
"The growing availability of purchasing textbooks online and how it influences a buyer's motivations and perceptions compared to purchasing textbooks through the college bookstore."
Calvin Jurich

Textbooks are one of the most expensive items a college student needs for their classes. This is one of the main reasons why students become price conscious when choosing where to buy their textbooks. Their two main options are the campus bookstore and websites that sell/rent books online. This research will examine the motivations and perceptions of traditional college students ages 18-23 when purchasing textbooks online versus the campus bookstore. The results will assist bookstores on how to compete against the growing popularity of online retailers. A written questionnaire was used to identify the different motivations and perceptions associated to buying textbooks online rather than in the bookstore.

Faculty Sponsor: Brad Sago

Abstract 7E
"How the use of Celebrity Affiliations Effect Brand Preferences among Traditional College-Age Students"
Stephanie Wipf

Numerous marketing efforts involve the use of celebrity endorsements to promote brands and products. This business strategy aims to capture the influential power of popular figures within the minds of consumers, hoping to sway preferences and loyalties. Many of today's top brands invest huge portions of their budgets to align themselves with A-list celebrities in an effort to draw both positive attention and enhance a desirable image paralleling the brand's objectives. This research studied the extent of its effectiveness in shaping purchasing behavior and brand preference. With today's cultural dominance of celebrities, it was hypothesized that college-aged consumers have the tendency to affiliate more positive feelings towards brands with popular celebrity endorsement over similar brands without the backing of star power. Through surveying, the reactions of college-aged students to the use of celebrity endorsements in various common brands has been measure, analyzed and concluded upon.

Faculty Sponsor: Brad Sago

Abstract 8A
"Analysis and Projection of the North Magnetic Pole Movement"
Taeko Yoneyama

The Earth is strongly connected to the geomagnetic field. It can even be described as a large magnet which has North and South Poles. Therefore a magnetic compass roughly points toward the north. However over the last 30 years the north magnetic pole has moved away from the geographical north rapidly. Our research includes collecting data magnetic pole location data developing a chronological table location versus time determination of the velocity and acceleration of the pole movement and regression analysis to smooth the movement velocity. Finally we hope to project future locations of the north magnetic pole.

Faculty Sponsor: Richard Bishop

Abstract 8B
"A Mathematical Model of Seeding Percentage in the Siberian Wallflower"
Laura Robison, Katherine Carpenter

The Siberian Wallflower cheiranthus allionii is a wildflower found in all regions of North America. This work proposes a mathematical model of the seeding percentage of cheiranthus allionii. Self-incompatibility properties possessed by this plant species as well as dominance patterns specific to the hexaploid nature of the plant are considered in this model. The complexity of hexaploid plants greater than that of diploid plants increases the number of genetic possibilities thus elevating the difficulty of prediction of successful generation

of seeds. A matrix implemented in a computer program predicts the probability of successful seed production of the flowers within a given time period.

Faculty Sponsor: Nicholas Willis

Abstract 8C
"An Introduction to Elliptic Curve Cryptography"
William Sehorn

Elliptic curve cryptosystems are a form of public key cryptography developed in the 1980s which use an adapted form of the discrete logarithm problem. In this presentation we explain how elliptic curves work and how they're used in cryptography. We explain the basics of elliptic curves including cryptographic schemes and elliptic curve arithmetic. Finally we do an example of elliptic curve message exchange over a binary field.

Faculty Sponsor: Donna Pierce

Abstract 8D
"Pastries and Rocket Science"
Kevin Sonnanburg

When you play a game that involves movement in a space that game has a given topology. We will look at ways of visualizing and interpreting what happens when we manipulate the topology of a game and how it might influence your experience as a player.

Faculty Sponsor: Nicholas Willis

Special Session 9
"Interpersonal Communication in Initial Interactions, Long-Distance Relationships, and Cross-Sex Friendships"
Faculty Moderator: Joe Vigil

Abstract 9A
"I Won't Forget You! Memorable Characteristics in Initial Interactions"
Ninita Sporseen, Aaron Quigley, Sarah Tunall

While many people understand the importance of cultivating positive, lasting first impressions, we know little about how to do so. This study will explore the traits the make a person particularly memorable during an initial encounter. Specifically, we will explore how both positive and negative memorability are cultivated. Finally, it will offer insight as to how traits of the person remembering affect their interpretation of the meeting and the memorability of the person being remembered.

Faculty Sponsor: Alan Mikkelson

Abstract 9B
"Communication of Affection in Cross-Sex Friendships"
Jasmine Linabary, Tim Takechi

Cross-sex friendships, can present unique dynamics because of the potential uncertainty about the nature of the relationship. There are different types of cross-sex friendships depending on if the friendship partners

share romantic feelings for one another or not. The goal of the current study was to understand how affectionate communication differs between these different relationship types and whether the uncertainty in the relationship plays a role in influencing perceptions of affection. The general hypotheses were that receiving affection is more prevalent in relationships where both people want romance than in relationships where neither people want romance, and that the level of certainty in the friendship will positively affect perceptions of affection.

Faculty Sponsor: Alan Mikkelson

Abstract 9C
"Communication Channel use in Long-Distance and Proximal Romantic Relationships"
Chris Caldwell

Although romantic couples have engaged in long distance relationships for centuries, the advent of new technology has allowed long distance romantic partners to keep in touch with one another like never before. Specifically, romantic couples in long distance relationships have more options than ever for communicating with one another and dealing with relationship issues. The goal of the current study was to understand how individuals in long distance romantic relationships (LDRRs) compare with geographically close romantic relationships (GCRRs) with respect to their communication channel use, and how those channels are related to closeness and relational satisfaction in romantic relationships. Results indicated that LDRRs used more instant messaging, e-mail, letters, text messaging, and personal web pages (facebook, etc.) and GCRRs. Further, GCRRs used more face-to-face communication than LDRRs.

Faculty Sponsor: Alan Mikkelson

Abstract 10A
"Synthesis and characterization of ReCl(CO)3(47-dihydroxy-110-phenanthroline) and Re(OTf)(CO)3(47-dihydroxy-110-phenanthroline)"
Arianna Demmerly

Metal hydroxo carbonyl complexes are promising catalysts for nucleophilic reactions in biochemical and industrial processes. Our work focuses on the synthesis of novel Re(CO)3(phen). To that end the synthesis and characterization of ReCl(CO)3(47-dihydroxy-110-phenanthroline) and Re(OTf)(CO)3(47-dihydroxy-110-phenanthroline) are described. These novel complexes provide steps toward advancing our development of metal hydroxo carbonyl catalysts.

Faculty Sponsor: Kerry Breno

Abstract 10B
"Oxidizing 47-dimethyl-110-phenanthroline for Use as a Ligand"
Pamela Anderson

Phenanthroline type ligands are widely used in coordination and organometallic complexes. Therefore straightforward synthetic methods for functionalized phenanthroline ligands are in demand. In particular oxidized phenanthroline compounds are expected to have significant electronic tuning potential and increase solubility of future complexes. This work focuses on the oxidation of 47-dimethyl-110-phenanthroline to 47-dicarboxy-110-phenanthroline. Two methods were investigated and are reported.

Faculty Sponsor: Kerry Breno

Abstract 10C
"Synthesis of Mo(47-dihydroxy-110-phenanthroline)(1-n3-2-butene)(CO)2OH"
Erin Cooley

Organometallic hydroxy complexes play important catalytic roles in biology and industry. To date there have been problems in creating effective and stable organometallic compounds due to poor solubility and a tendency for oligomerization. A novel monometallic hydroxo molybdenum complex is proposed. Research on the synthesis and characterization of Mo(47-dihydroxy-110-phenanthroline)(1-n3-2-butene)(CO)2OH are presented.

Faculty Sponsor: Kerry Breno

Abstract 10D
"Volumes of Overlapping P-Orbitals of Interest to the Organic Chemist"
Ryan Cloke

The early stages of this project are underway in an analysis of the overlap of p-orbitals of atoms of interest to organic chemists. Specifically we are interested in analyzing the change of the area and volume of overlap in these orbitals as they change with respect to rotation hybridization and bond length. The first step in this process involves choosing a suitable model for the electron cloud of a generic p-orbital. Let r =cos(2?) in polar coordinates (r?) denote this function. After this analysis is complete we will turn our attention to the hydrogen-like orbital equations given by physical chemistry textbooks. Using the hydrogen-like equations will provide more realistic information for specific atoms. This analysis will be beneficial in the use of infrared spectroscopy which is a vital tool in the characterization of many chemical compounds.

Faculty Sponsor: Matthew Cremeens

Special Session 11 (see Special Session 5)

Abstract 12A
"And I Approve This Message: An Examination of Negative Advertising During Political Campaigns"
Luis Lopez

Since the inception of television commercials in presidential campaigns, starting with the election of 1952, many in the academic community have been trying to evaluate the effectiveness of attack advertisements on the American electorate. With the 2008 presidential election now in the history books, a new crop of attack advertisements have arisen, and, the debate over their effectiveness is still raging. In my paper, I argue that campaign advertisements issued over the course of a presidential election will mobilize voters, who will therefore vote for their preferred candidate based upon their particular party affiliation.

Faculty Sponsor: John Yoder

Abstract 12B
"A New Electoral System for Westminster?"
Megan Houlihan

In 1997 Tony Blair and a New Labour government swept into power and ushered in ten years of electoral reform. However the first-past-the-post electoral system (FPTP) for the Westminster Parliament remains unchanged. A flawed electoral system creates a flawed government thus undermining the political structure. Perhaps no change has come to Westminster because FPTP creates the most effective and legitimate

government. On the other hand FPTP may undercut the United Kingdom's status as a liberal democracy. Thus I ask this question which I see as central to the establishment of good government in modern Britain: Which electoral system best suits Westminster in the twenty-first century? I answer this question by evaluating FPTP alongside the single transferable vote (STV) and the mixed-member plurality (MMP) systems and I ultimately recommend that the Westminster adopt the new electoral model propounded by the Arbuthnott Commission.

Faculty Sponsor: Matt Cole

Abstract 12C
"When Push Comes to Shove"
Marissa Johnson

This paper analyzes the societal context of Ireland in order to determine whether or not Ulster Unionists could have accepted a form of Home Rule. During the end of the 19th century and early stages of the 20th century the discussion of Ireland's localization within the United Kingdom became a highly controversial topic particularly among Ulster Unionists. By analyzing the religious political and economic arguments against Irish autonomy as well as the intense opposition of the Ulster Unionists towards Home Rule the conclusion drawn shows that Ulster Unionists could have accepted a form of Home Rule that involved the exclusion of Ulster. (This is significant in that it gives the background to the Troubles that dominated Northern Ireland's society toward the end of the 20th century as well as to the political and social issues that continue there to this day).

Faculty Sponsor: Dale Soden

Abstract 13A
"The Influence of Premiums in Pharmaceutical Marketing on Medical Decision-Making from a Physician's Perspective"
Allison Spencer

Premiums given by the pharmaceutical industry to physicians are common and controversial. Also referred to as gifting examples of premiums include providing physicians with branded pens free product samples paid meals and trips and sponsored educational and training sessions. Physicians' attitudes on pharmaceutical gifting will be the focus of this research. Pharmaceutical companies consider gifting as an investment that helps build relationships and foster interactions between physicians and the pharmaceutical industry. However pharmaceutical marketing critics feel that gifting to physicians overtly influences medical decisions and has potential ethical implications which has sparked controversy over whether regulations should be imposed on pharmaceutical marketing practices. Opinions of physicians regarding the influence of premiums on decisions to accept sales calls and prescribe pharmaceuticals will be gathered via an anonymous questionnaire to a pool of physicians.

Faculty Sponsor: Brad Sago

Abstract 13B
"Attracting Middle to High School Aged Students to Participate in Sports Organizations Through Marketing Channels and Promotions"
Lindsay Dalby

This research examines the mixture of marketing channels and promotions that attract 11-18 year old students to participate in non-school affiliated sports organizations regardless of athletic ability. With limited openings for students to participate in school sanctioned sports there is an opportunity for sports organizations to be an outlet for youth to play various sports. The results of the study will assist sports organizations to develop

beneficial promotional tools and a selection of marketing channels that can be used to attract participants. A questionnaire and group interviews were used to collect the marketing exposure that prompted the participation in sports organizations and measure the reason for the initial interest. A second questionnaire and group interviews were administered to evaluate the knowledge of sports organizations and the marketing channels that would best reach the students. Both parents and student will participate in the questionnaires and interviews.

Faculty Sponsor: Brad Sago

Abstract 13C
"The Effectiveness of Commercials Shown During Television Shows Broadcasted on the Internet by Traditional Age University Students"
Katrina Bayens

Watching television shows on the Internet after they have originally aired on television is becoming more popular especially among those with changing schedules. A study conducted by a global marketing research company found that 16 percent of American households watched at least one television show broadcasted on the Internet during 2007 – more than double than the year before. Although fewer commercials are shown during Internet broadcastings – with an average of two minutes of commercials during a half hour show broadcasted on the Internet compared with eight minutes for a show broadcasted on television – are the ones that are shown effective? Traditional age university students (age 18-24) completed a survey after watching a show on the Internet. Results were analyzed to determine the most unique characteristics of commercials that were deemed effective. This research analyzes the commercials' effectiveness through whether the brand theme frequency and/or style were recalled.

Faculty Sponsor: Brad Sago

Abstract 13D
"Aesthetics Effect on Premium Pricing in Fine Dining Establishments"
Adrian Grissom

Why is a meal at a Fine Dining Restaurant priced relatively higher when compared to a very similar meal at any other dining establishment? The answer is not as simple as you may think. What makes that menu item cost more often goes unnoticed however it does affect purchasing decisions. This research examines whether aesthetics of a restaurant can increase the price of entrees beverages and desserts on a menu. The focus of this research was to examine how the layout of the restaurant presentation of the food and overall aesthetics all influence a restaurant's ability to set premium prices. A questionnaire and interviews were used to gather data about how consumers view aesthetics and if it affects there purchasing decisions.

Faculty Sponsor: Brad Sago

Abstract 14A
"Parents in the Dorm"
Paige Hurtig-Crosby

Although research has supported that the bond individuals form with their caretakers follows them throughout life little research has been conducted with individuals above the age of adolescents. Researchers distributed self-report questionnaires to 80 participants that assed parental attachment social assertiveness and depression. Findings failed to support the initial hypthesism however results were still significant. Using Spearmans Rho researchers found correlations were found between mother and father coldness depression and social

assertiveness. However after calculating a linear regression despite a significant overall equation when father coldness was entered (adjR2 = .08 p<.05) and when mother coldness was entered (adjR2 = .07 p<.05) we found that once depression was entered there was no longer any significant linkage between social assertiveness and parental coldness. Our findings support another theory of mood dependent memory effecting test results.

Faculty Sponsor: Anna Marie Medina

Abstract 14B
"Light preference and responses of Henricia leviuscula to varied light conditions"
Jessica Alexander

Sea stars have eye spots on the end of each arm which can only detect light differences. With this in mind I decided look at the light preference of sea stars and perform an experiment to see if they preferred light or dark. At Friday Harbor Henricia leviuscula were collected. This species is part of phylum Echinodermata and the class Asteroidea. The nine sea stars were placed down the center of a sea water tank that had a cover on top of it creating four different amounts of light on the tank from full light to none. The sea stars were left for one hour and then their location and number of specimens in each section recorded. The seas stars were found in higher number on the two end sections however the two sides did not have a significant difference. It appears Henricia do not prefer light or dark conditions over the other. Since a large number of sea snails were available the same experiment was also performed with snails. The snails appeared to have a preference towards light.

Faculty Sponsor: Craig Tsuchida

Abstract 14C
"Development of protein probes to measure Ca2+ in the chloroplast stroma and thylakoid lumen"
Erik Frandsen, Leah Schwiesow, Kristen Weakly, Matt Velinder

Evidence suggests that calcium could play a role in regulating photosynthesis. In lighted conditions the thylakoid and chloroplast stroma have opposing needs for calcium. When the lights go out a large spike in calcium concentration has been detected in the chloroplast stroma. Our lab hypothesizes this peak is inversely mirrored in the thylakoid lumen. To measure calcium concentrations in vivo vectors containing genes of one of two calcium-sensitive protein probes YC3.60 or aequorin and one of two transit peptides targeting the thylakoid lumen OE17 and OE23 or the chloroplast stroma RBCS were designed. This allowed for the construction of vectors that would express a calcium-sensitive probe and target the probe to a compartment. The vectors will be introduced into Arabidopsis thaliana via Agrobacterium tumefaciens-mediated transformation. This research will give insight into the processes underlying calcium transport in chloroplasts and its role in photosynthesis.

Faculty Sponsor: William Ettinger

Abstract 14D
"Influence of water velocity on the moving speeds of different species of Nudibranchia"
Jessica Smalley

After recently learning about marine invertebrates it became easy to choose an animal upon which to research and study. I find sea slugs or nudibranchs very fascinating. I found the movement of sea slugs very interesting and decided to research how the speed of water influences the movement speeds of the animals. I worked with three different species: Anisodoris nobilis Dirona albolineata and Triopha catalinae. I created a

simple setup splitting a saltwater table into two sides one for the faster moving water and one for the slower moving water. Four different sea slugs from each species were tested. They were placed in the fast water for five minutes and the distance they traveled was measured. They were then moved to the slow water and the distance traveled there was measured. By testing all twelve sea slugs several times an obvious trend was determined. All three species of sea slugs move faster in the slower water.

Faculty Sponsor: Craig Tsuchida

Abstract 14E
"The influences of foot size and species on the attachment strength of limpets"
Emily Whitney

To prevent both desiccation and dislodging limpets clamp down against the substrate. I examined how the strength of a limpet's attachment is affected by foot size and species. I hypothesized that when limpets' attachment strength was compared to foot size the larger specimens would require more weight to dislodge due to greater contact area with the substrate. To test this hypothesis I measured the mass required to dislodge a limpet from a substrate and the dimensions of the limpet's muscular foot using varying sizes and species of limpets collected on San Juan Island Washington. When foot area and the dislodging mass were compared three out of the four species tested showed attachment strength increased with foot area. The calculated range of pressures required to dislodge a species corresponded to the species' intertidal habitat range. The results warrant further study about the influence of foot size and species on attachment strength.

Faculty Sponsor: Craig Tsuchida

Abstract 14F
"The aggressive behavior between clonemates and non-clonemates of Anthopleura elegantissima"
Awbrey Gilliam

Four colonies of A. elegantissima were collected from Cattle Point and transported to the labs at Friday Harbor. Individual sea anemones were placed on the edges of labeled glass slides and left to dry until firmly attached. Two test organisms at a time were forced into a physical encounter under water in a glass dish. The behavior between the two sea anemones was observed under a dissecting microscope for twenty to thirty minutes. Aggressive behavior was observed for interactions between both clonemates and non-clonemates. It appeared that some sea anemones were more aggressive than others perhaps serving as the designated warriors of their colony. The progression of the aggressive behavior consisted of a series of stinging flinching and retracting usually completed by both individuals involved. There were not enough successful interactions between the colonies to reach an obvious conclusion.

Faculty Sponsor: Craig Tsuchida

Abstract 14G
"The Duration of Positive Effects of Hippotherapy on Cerebral Palsy"
Alyson Shaffer, David Ellis

This study aimed to confirm the reported positive effects of hippotherapy on patients with cerebral palsy and to then assess how long such effects lasted into a one week period of time. Using a 6 year old subject diagnosed with cerebral palsy our clinical based approach allowed us to observe the improvement of muscle symmetry of the left and right gastrocnemius through the use of electromyography (EMG) equipment. Through analysis of obtained EMG readings we have found that improved muscle symmetry results

immediately after therapy and continues to improve for two days following therapy after which point any pattern of muscle coordination related to hippotherapy cannot be determined.

Faculty Sponsor: Mike Sardinia

Abstract 14H
"The relationship between substrate type and rate/depth of burrowing as seen in Cancer magister"
Benjamin Moresco

Cancer magister is a unique species of crab caught commercially around the northern pacific coast. In documenting and testing the C. magister's ability to burrow I chose several variables: rate depth and time to start burrowing in order to try to completely assess a hierarchy of substrate preference. In order to test a variety of substrates for the Dungeness crabs to burrow in I used potting soil sandbox sand mud and clay from False Bay and gravel from the beach at Friday Harbor Labs. I used five 5 gallon buckets filled to about 15cm from the top. After assessing 12 individual crabs in each environment 3 times for a total of 36 trials in each substrate I found that C. magister has a hierarchy of substrate preference from the most preferred to the least of: sand > soil > mud > gravel > clay.

Faculty Sponsor: Craig Tsuchida

Abstract 14I
"Implications of Waste Treatment Discharge on the Health of Rana pipiens"
Benjamin Moresco

Amphibians are commonly used to assess environmental health due to their acute sensitivity to environmental change. Spokane's Wastewater Treatment Plant treats up to 44 million gallons of water a day from the city of Spokane. Once the water goes through a treatment and purification process some of the treated water is then released into the Spokane River. Effects on the physiology of the amphibian species Rana pipiens provided great insight into the potential effects of such discharge on the biotic capacity of the downstream Spokane River. After 6 weeks of exposure in the treated water the amphibians experienced a decrease in weight and a decrease in white blood cell counts as compared to the control and the upstream river water. These results hold a potential role in the immune system of all biotic species occupying the Spokane River downstream of the Spokane Wastewater Treatment Plant.

Faculty Sponsor: Mike Sardinia

Abstract 14J
"Influence of water flow in habitat selection of the nudibranch Dirona aurantia as studied on San Juan Island"
Daniel Bergman

Influence of water flow in habitat selection of the nudibranch Dirona aurantia as studied on San Juan Island Daniel Bergman Friday Harbor Laboratories (University of Washington) Friday Harbor Washington 98250 USA ABSTRACT: The majesty of the oceans is a riddle I wish to unveil. Particularly the mysteries associated with nudibranchs: phylum Mollusca and class Gastropoda. At the Friday Harbor Laboratories on San Juan Island WA 17 D. aurantia were collected and tested for behavioral preferences. Individuals were subject to calm and turbulent water. It was hypothesized that D. aurantia preferred calm water over turbulent water. The water velocities were quantified by a Lifesaver dissolution test. After numerous trials D. aurantia appeared to move in a positive rheotaxic manner. It cannot be concluded that D. aurantia prefers calm water over turbulent water. However the majority of the individuals preferred a flow rate between 2.5 mg/sec and 4.5mg/sec. Rev. 11 March 2009

Faculty Sponsor: Craig Tsuchida

Abstract 14K
"Biomechanical and Morphological Variation in Stomatopod Cuticle"
Matthew George

The stomatopod crustacean dactyl is used to repeatedly smash mollusk shells producing cavitation and impact forces in excess of 1000 N while sustaining only slight damage to its surface. In this study we attempt to quantify the microstructure and nanomechanical properties of the stomatopod dactyl with particular emphasis on the material support structure that allows for this impressive behavior. We examined cuticle of the peacock mantis shrimp (Odontodactylus scyllarus) in addition to several other species with various feeding behaviors. Using histology and SEM cuticle morphology across and among species was examined. Nanoindention was used to determine hardness elasticity stiffness and toughness. We observed unprecedented variation in both cuticle properties and structure. The results suggest that the cuticle of the stomatopod is highly derived relative to other crustaceans and that its structure is adapted for multiple functions including withstanding extreme impact forces

Faculty Sponsor: Brook Swanson

Abstract 14L
"Effects of tidal and temperature changes on the intertidal location selection of Anthopleura Elegantissima as studied on San Juan Island"
Chase Talbot

I wanted to know if the evolution that made sea anemones able to survive multiple conditions also programmed a response to an excess of one environmental condition. To determine this I chose to use the anemone Anthropleura Elegantissima (Phylum Cnidaria Class Anthozoa). Each test lasted 24 hours and mimicked the two high and two low tides that occur in a single day. I conducted three 24 hour experiments changing the time exposed during each interval from 5 to 7 to 9 hours. I hypothesized that there would be an increased movement down the incline with each increase in time exposed to air. My results showed that there was a desire to move from the anemones initial position when exposed to air vs. being submerged however there is not enough evidence to conclude that there was a difference between the increasing exposure times. I also studied the effects of increased temperature on A. Elegantissima. .A. Elegantissima can survive much higher temperatures than I initially expected.

Faculty Sponsor: Craig Tsuchida

Abstract 14M
"16S rRNA Sequence Analysis of Caedibacter varicaedens ssp. 7"
Derek Weyhrauch

Obligate bacterial endosymbionts of strains of killer Paramecium species constitute the genus Caedibacter. These bacteria appear to share related extrachromosomal elements which direct the synthesis of large protein inclusion bodies that are toxic to non-symbiont-containing paramecia. The bacteria however are phylogenetically quite distinct. To help elucidate the phylogenetic relationships among the various caedibacteria 16S rRNA genes from Caedibacter varicaedens ssp. 7 were amplified by PCR from the total genomic DNAs of symbiont-containing Paramecium biaurelia cultures. Sequences were cloned into TOPO-TA vectors transformed into competent Escherichia coli then sequenced using the LI-COR 4300 DNA Analysis System.

Faculty Sponsor: Finn Pond

Abstract 14N
"Correlation Between Middle Cerebral Artery Velocity and Aerobic Exercise Using Leg Ergometry and Voluntary Breath Holding"
Daniel Raible, Daniel Repsold

Strokes are the leading cause of long-term disability in America. In an effort to improve the quality of life for these patients the American Heart Association has designed exercise rehabilitation programs. However such activity in terms of cerebral blood flow changes is not well known. Here we increase oxygen demands in the brain bye exercise and breath holding looking at mean flow velocity (MFV) in the middles cerebral artery (MCA). The exercise consisted of a bike following the YMCA Cycle Ergometer Protocol. It was found that both breath-holding and exercise produced an increase in MFV and even though a subject's HR was much greater during exercise MFV was greater at the end of breath-holding. These findings suggest that the increase in MFV within the MCA during moderate exercise is due to increase stroke volume and not vasodilatation and thus a blood steal would be unlikely to occur.

Faculty Sponsor: Mike Sardinia

Abstract 14O
"The relationship between expense ratio and total amount of money donated to non-profit organizations"
Chris Baldwin

This research determines the relationship between the publicly disclosed expense ratio for non-profit organizations and donor financial support. Non-profit organizations are required to make public the percentage of income that goes to pay expenses verses the percentage of income that goes toward the respective cause. The research was gathered through surveys collected from adults in the Spokane region. The research examines whether among adults (18+) public disclosure of the expense ratio percentage actually does impact the amount of money donated to an organization. Non-profit organizations can use the information in solicitation efforts and promotion in order to increase donations.

Faculty Sponsor: Brad Sago

Abstract 14P
"Biochemical characterization of yeast vacuolar ATPase protein subunits E and G"
Brian Harms, Jesse Spaun

The yeast vma4 and vma10 genes which code for subunits E and G respectively in yeast vacuolar ATPase were examined. The goal of this study was to determine regions of interaction between these subunits via cysteine-scanning mutagenesis. Sites previously determined to be likely regions of interaction due to predicted high propensity to form alpha-helix coiled-coil structure were chosen for site-directed mutagenesis to cysteine. The expression and purification of protein subunits was optimized and copurification methods were determined. Wild-type GST-G and E-His tagged proteins were successfully purified and data obtained indicate successful copurification of the subunits. Cysteine mutants were constructed and are being purified for chemical cross-linking experiments to delineate regions of interaction.

Faculty Sponsor: Deanna Ojennus

Abstract 14Q

"Reducing 18O/16O Back-exchange to Improve Labeling and Quantitation of RNA"
Kathleen Lilleness

The identification and quantification of isotopically labeled ribonucleic acids (RNAs) has been demonstrated using Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry (MALDI-MS). Analysis of complex mixtures of RNA depends upon enzymatic digestion of RNAs in the presence of H216O or H218O and labeling of resulting oligoribonucleotides. The integrity of the isotopic label increases quantitative accuracy; therefore back-exchange of the 18O-labeled oligoribonucleotides to 16O-labeled oligoribonucleotides was tested under various conditions and detected by MALDI-MS. One-step labeling high temperature and low pH increased the back-exchange of labeled oligoribonucleotides while reaction kinetics indicate that RNase T1 plays a catalytic role in back-exchange. Accordingly isotopically labeled oligoribonucleotides should be separated from the enzyme and stored in a frozen non-acidic environment.

Faculty Sponsor: Deanna Ojennus

Abstract 14R
"Using 1H and 13C NMR in Determining the Structure of Acylated Proline"
Matt Delsman

Neuropeptides are signaling molecules within the brain and gastrointestinal tract. Problems with signaling often cause health problems. Neuropeptides within the brain are often poorly characterized under physiological conditions. Our research aims to provide key structural characteristics of neuropeptides under physiological conditions to aid in the design of therapeutics.The amino acid proline (Pro) has significant structural and functional characteristics in peptides due to its structure. Proline's presence within neuropeptides makes it an ideal target for assessing neuropeptide structure. 13C NMR of N-acylated proline (Ac-Pro) has aided in providing key structural data for Pro by showing cis-trans amide isomerization. IR measurements of C? deuterated Ac-Pro can help clarify IR data of Pro and provide a better indication of what will be observed for site-specific deuterium labeled Pro in neuropeptides.

Faculty Sponsor: Matthew Cremeens

Abstract 14S
"Neuropeptide Signaling: Analysis of Proline"
Andrew Durgan

Proline one of the twenty one amino acids has significant structural and functional characteristics as it pertains to the overall structure of a peptide chain. Based upon these unique characteristics proline can be used as an ideal target molecule. However the infrared (IR) spectrometer was used to detect a specifically deuterium-labeled (C-D) site as an active location for direct probing. The IR data collected on the zwitterionic form of L-Proline indicate the possibility of more than one structure conformations possibly from the detection of carboxylate rotamers. However the C13 NMR measurements of Prolines only indicate one conformation as presented within.

Faculty Sponsor: Matthew Cremeens

Abstract 14T
"Cloning and Expression of Putative Class II HMG-CoA Reductase from Burkholderia cenocepacia"
Holly Dembinski

Cystic fibrosis (CF) often results in severe respiratory infections. The pathogen Burkholderia cenocepacia is naturally resistant to common antibiotics is found in high concentrations in the lungs of late-stage CF patients and is often the eventual cause of death. It is therefore paramount that potential antibacterial targets be identified. A search of the recently released genome of B. cenocepacia reveals a predicted protein sequence with high identity to Class II HMG-CoA reductases (HMGRs) which catalyze the key regulatory step in the mevalonate pathway. The end product of the pathway is the precursor for a number of important biomolecules required by the bacterium. Thus HMGR may be an attractive target for novel antibiotics. The central aims of this study are to express and purify the putative B. cenocepacia HMG-CoA reductase.

Faculty Sponsor: Jeffrey Watson

Abstract 14U
"Synthesis of Pantetheine Substrate Analogues of Class II HMG-CoA Reductase"
William Ohlstrom

3-hydroxy-3methylglutaryl coenzyme A (HMG-CoA) reductase catalyzes the first committed and rate-limiting step of the mevalonate pathway for biosynthesis of isopentenyl diphosphate (IPP). HMG-CoA reductase (HMGR) sequences fall into two evolutionary classes: Class I found in eukaryotes and most archae and Class II found in some eubacteria and other archae. While the structure of the active site and key catalytic residues is generally conserved between the two classes of HMGR the differences in statin binding suggest that inhibitors specific to Class II HMGRs could be developed as novel antibacterial agents. Pantetheine analogues featuring hydroxyl (-OH) and seleno (-SeH) groups in place of the sulfhydryl group found in Coenzyme A could provide valuable insight into HMGRs role in enzyme-catalyzed mevalonate oxidation.

Faculty Sponsor: Jeffrey Watson

Abstract 14V
"Synthesis of Hydrophobically Modified Nucleobases to Enhance Cellular Uptake of Antisense Oligonucleotides"
Daniel Raible

Over the past decade there has been advancements in nucleic acid based therapeutics. One example hereof antisense oligonucleotides (AO) are single stranded oligonucleotides that can bind sequence specifically to an mRNA. To increase the affinity of AOs to the mRNA locked nucleic acids (LNA) have been incorporated into the AOs. Incorporation of these restricted nucleoside analogs increase the binding affinity of AOs toward complementary RNA by preorganizing the strand for hybridization. One of the major disadvantages of AO therapeutics is their poor cellular uptake. In an effort to address this our group developed six hydrophobic LNA analogs that will be incorporated into AO's. These groups are expected to increase the cellular uptake of AOs. The goal of this research is to develop a new class of drugs that can prevent formation of proteins involved in diseases caused by abnormal gene expression without perturbing the cellular machinery.

Faculty Sponsor: Deanna Ojennus

Abstract 14W
"I Saw Mommy Kissing Santa Claus: A Study of Relationship Mirroring and Satisfaction in Young Adults"
Katrina Hauck

The purpose of this study was to investigate whether or not young adults tend to mirror their own romantic relationships after those of their parents. Data were collected by using the Relationship Questionnaire (RQ Bartholomew & Horowitz 1991) and the Multidimensional Relationship Questionnaire (MRQ Snell 1997).

Results supported the hypothesis that there is a positive correlation between how young adults view their levels of satisfaction in their own romantic relationships and how they perceived the level of relationship satisfaction in their parents' relationship RQ r (79) = .49 p = <.001 MRQ r (79) = .31 p = .006 . These findings are discussed in terms of their potential import for predicting lower levels of satisfaction in romantic relationships and foreseeing future potential for increased divorce rates.

Faculty Sponsor: Noelle Wiersma

Abstract 14X
"The Sex Current: Sexual Attitudes and Beliefs of College Students and the Trends of their Sexual Behavior"
Giselle Cunanan

Casual sex is a norm of college student behavior. The no-strings-attached attitude is the foundation for the hook-up culture. "Hooking-up" can mean anything between the extremes of kissing to sexual intercourse. This study will investigate the social forces (sexual or otherwise) that shape participation in college hook-up culture. This study will provide a complex examination of today's college student sexual behavior by using interview research methods to determine what characteristics and strategies students use to increase their "value" on the hook-up market.

Faculty Sponsor: Vikas Gumbhir

Abstract 14Y
"The Effects of Preferred Reward on Using an Augmentative Communication Device with a High School Student Diagnosed with Cerebral Palsy"
Kayla Maddy, Kari Lanham, Amy Watts

The purpose of this intervention was to evaluate the effects of a preferred reward cosmetic make-up on the rate of independent responses of a 20-year-old student with cerebral palsy using an augmentative communication device. The student used a scanner operated by a switch to answer yes or no comprehension questions to a children's book. During the intervention the student was rewarded with make-up based on an AB design. By the end of the study the student's rate of independent responses increased and the rate of full physical prompts decreased. The intervention was low-cost and did not require much additional time. The implication of this study suggests the success of using preferred rewards as potential reinforcers.

Faculty Sponsor: Betty Fry WIlliams

Abstract 14Z
"Effects of Direct Instruction Flashcard and Reading Racetrack Procedures on Reading Core Words by Two Students with Disabilities"
Zennetta Mann, Katherine Shaw

Reading is probably the most important skill taught in school, yet, 20-30 percent of persons in the United States are illiterate. If students cannot read they will likely fall behind in other critical areas, even math and science. Reading is not only the best predictor of success in school it is critical for even the most basic of jobs. People with poor literacy skills tend to be in low paying jobs, may suffer lengthy periods of unemployment, are less likely to vote or own their own home, (Askov, 1991). Children with poor reading skills will likely fall further and further behind academically and will become less likely to remain in school. Two methods that can be used directly to teach core words are the Direct Instruction Flashcard and the Reading Racetrack procedures. The purpose of the present study was to evaluate the effects of implementation of the Direct Instruction Flashcard procedure combined with the Reading Racetrack procedure

on First Grade core words of two elementary students diagnosed with learning disabilities within a resource room setting.

Faculty Sponsor: Randy L. Williams

Abstract 14AA
"Parametric Investigation of Lithium Plasma Thruster Performance on Mars Cargo Missions"
Kellen Oetgen, Mahyo Seyedali

Electric propulsion (EP) systems offer significant propellant mass savings over conventional chemical propellant systems for deep-space missions, due to their higher exhaust velocities. Therefore EP systems have been the subject of many mission studies for cargo and piloted trips to Mars. Of the various types of electric propulsion systems, earlier studies have identified a specific type of high-power plasma thruster – the Lithium Lorentz Force Accelerator (LiLFA) – as a suitable candidate a mission to Mars. The purpose of this study is to explore the effect of variations in LiLFA performance on propellant mass required and total trip time for fixed payload cargo missions to Mars. In order to do so, the differential equations of motion for the spacecraft, powered by a low-thrust engine, in the spheres of influence of gravitational fields of the Sun, Earth and Mars were solved simultaneously using a fourth-order Runge-Kutta method. The thrust angle was allowed to vary to optimize the trip. The study investigated the propellant and time requirements to deliver a total payload mass of 9.0 metric tons from low-Earth orbit (LEO) to a circular orbit around Mars. For the parametric variation, the electrical power supply was restricted to be of the order of O(100 kW), the specific mass of the electric power supply systems to be in the 4 – 16 kg/kW range, the specific impulse of the thrusters to be in the 3000 – 4000 s range, and the thruster efficiencies to be in the 0.40 – 0.60 range. Furthermore, the investigation accounted for the variation in the thruster efficiency on the operational power level. The results of this investigation indicated that the total mission time was almost purely dependent on the input power level. The results also indicate the existence of asymptotes for minimum trip time and minimum fuel mass requirement for a given value of specific mass of the power supply. The results also indicated that it is not beneficial to have input power levels greater than 500 kW, since the trip time improvements beyond that point are negated by increases in the mass of the spacecraft.

Faculty Sponsor: Kamesh Sankaran

Abstract 14AB
"R-body Expression for Structural Analysis by NMR"
Isaac Lutz, Karolynn Tom

The genes rebA, rebB, and rebC code for the synthesis of R bodies by Caedibacter taeniospiralis in several species of paramecia. C. taeniospiralis confers a killing trait on paramecia which requires the presence of R bodies, although the R bodies alone are not sufficient to be lethal. In this study, PCR primers were designed to subclone the rebA, rebB, and rebC genes into a pET14-b high expression bacterial vector under the restriction sites, Xho I and Nde I. Upon successful insertion of the gene into pET14-b, steps will be taken to express R-body proteins for high-resolution structural studies by nuclear magnetic resonance spectroscopy.

Faculty Sponsor: Deanna Ojennus

Abstract 14AC
"Prussian blue-modified electrode as an electrochemical sensor for atmospheric hydrogen peroxide"
John Hauck

Citing recent research, Prussian Blue is known to be an effective electrocatalyst for the reduction of hydrogen peroxide, and can therefore be used as an electrochemical sensor for hydrogen peroxide in solution. The research contained in this paper attempts to answer the question of whether the Prussian Blue sensor model can be adapted to the detection of atmospheric hydrogen peroxide, in particular hydrogen peroxide found in ice core samples. To this end, Prussian Blue was electrodeposited onto electrode surfaces in several formations, including thin films and nanoarrays. Electrode testing using hydrogen peroxide standards indicated that the Prussian Blue sensor is of the desired sensitivity for use in atmospheric analysis, and testing against ions commonly found in natural water that could potentially interfere with the sensor also indicated that the sensor is sufficiently selective for the desired purpose.

Faculty Sponsor: Drew Budner

Abstract 14AD
"Wirebased Electrochemical Detection of Hydrogen Peroxide"
James Lagucik

Hydrogen peroxide plays an important role in the environment. As a strong oxidizer, it eliminates several pollutants from the atmosphere. Currently, the most widely used method of detection is fluorometry. Another popular method is wire based electrochemical detection, which has an advantage over fluorometry because it does not produce organic waste. In this study, wire based detection was performed using a flow-through cell with counter, working and reference electrodes made of Pt, Pt/Rh(30%), and Ag/AgCl respectively. Results obtained gave insight into several areas of interest in electrode development including of the composition and function of electrode membranes.

Faculty Sponsor: Drew Budner

Abstract 15A
"From Bridget Jones to Bella Swan: Chick-lit and the Guise of Female Empowerment"
Julie Depner

In the last fifteen years the publishing industry saw a resurgence of fiction targeted at young women most recently the aggressively popular Twilight series. The series traces its success to the successes of its chick-lit predecessors e.g. Bridget Jones' Diary. Often these works use empowerment imagery and themes embodied in female characters who exhibit confidence financial security and witty societal voices. Though chick-lit appears to empower its heroines it actually promotes patriarchal gender stratification through hegemonic misogynist structures co-opting the symbols and themes of feminist thought. Drawing on socio-linguistics I performed a content analysis of the Twilight series showing how the empowerment gained by its female protagonist is masked by the limitations placed on her by the conventions and tropes of the genre. I also analyzed Twilight internet fan communities highlighting how patriarchal themes integrate into fan culture and online identity.

Faculty Sponsor: Vikas Gumbhir

Abstract 15B
"La familia chilena: An exchange student's observations of the Chilean family unit"
Katherine Tremayne

La familia. For centuries the system of the family has remained one of the central pillars of Hispanic culture and Chile is no exception. The Chilean family has retained its importance through war dictatorship and other innumerable trials heaped upon Latin America. But despite its endurance the Chilean family bears the scars of

the nation's history. This closely-knit unit has been a blessing in many ways like caring for the elderly but it has also had negative effects like permeating the tradition of machismo. As an exchange student I observed this phenomenon first-hand and have a better understanding of how and why the Chilean family has become as it is today and how it may continue to change in the future.

Faculty Sponsor: Angeles Aller

Abstract 15C
"The Mexican Woman: A study of change and turbulence in the context of Machismo"
Pamela Anderson

Beginning with the colonization of Mexico by Cortes through revolutionary movements and continuing into today machismo has come to define the role of man and woman in Mexican Society. Although there are various definitions of machismo herein it is defined as a social stigma of control and privilege that empowers the man over the woman economically politically psychologically and culturally. At present machismo continues to dictate the role of the Mexican woman despite steps toward women's economic independence political and organizational involvement and changes in marital law. The presenter seeks to trace the historical implications of machismo and its effects on today's Mexican woman.

Faculty Sponsor: Angeles Aller

Abstract 15D
"Middle Age(s) Disparity in Marriage: Definitions Overcome and Authority Gained (?)"
Zachariah Mullen

Between the Norman invasion and the late 14th century, marriage proved one of the most conflicting practices in English society. As the church preached Pauline beliefs, suggesting that men in particular avoid marriage at all costs to ensure reaching the summit of spiritual understanding, the secular segment in society largely promoted an economic element to marriage, the idea women were to be bought and sold to increase wealth essentially. In the face of the economic secular aspect and faith-based avoidance perspectives lay the idea of courtly love, in which passion and love drove mostly upper class individuals to marriage. This paper examines the amalgam of courtly love, economic practice and faith obedience in marriage as seen in Chaucer and others, and shows that lower and middle-class women in the middle ages were able to overcome the rigid rules in marriage, particularly those governing the age of the women involved.

Faculty Sponsor: Doug Sugano

Abstract 16A
"A Critique of a Naturalist's Perspective on Religion: James Dewey Niebuhr and Tocqueville"
Heather Stevens

An analysis and refutation of John Dewey's proposition that religion no longer has a place in society. Dewey contends against the practicality of supernaturalism testifies to the superiority of reason and argues for the transcendent "religious function." A critique of Dewey's position is presented by utilizing Niebuhr's analysis of reason and love. In close both Dewey and Niebuhr theories are considered in light of their ability to meet the needs of the American public as understood by 19th century American sociologist Alexis de Tocqueville.

Faculty Sponsor: Gerald Sittser

Abstract 16B

"Red Blue or Purple? Values and Voting among College Catholics"
Lucas Sharma

My project focuses on how Catholic identity shapes sociopolitical attitudes values and morals among college students. This project developed out of my previous work which concentrated more exclusively on key components of Catholic identity: friendships of faith adherence to teachings of Catholicism participation in Catholicism and the Catholic faith and opinions of what it takes to be a "good" Catholic. Not examined however was how Catholic identity influences the values morals and political opinions of today's Catholic college students. How do observant college Catholics identify politically? Are they at odds with certain Church teachings? Do they tend to emphasize certain issues over others? Using a self-administered questionnaire sent to a representative random sample at a private Catholic university in the northwest I explore how Catholic identity among college students differentiates political moral and social attitudes and values.

Faculty Sponsor: Matthew Bahr

Abstract 16C
"Strange Bedfellows: The Relationship Between Evangelical Christianity and Conservative Politics"
Sarah Huyck

For most of American history Christianity has had a direct influence on society outside of the political realm. However in recent decades there has been a dramatic shift as Evangelical Christians have aligned themselves with the conservative party producing a movement known as the Religious Right. This movement is a result of belief in America as a Christian nation the social and moral tumult of the sixties and the presidency of Jimmy Carter.

Faculty Sponsor: Gerald Sittser

Abstract 17A
"Predictions of the Social Spatial Organization of Spokane and its Neighborhoods: The Concentric Zone Theory"
Andrea Mason

This research aims to answer the question of the social spatial organization of Spokane and how the neighborhood of Peaceful Valley fits into that organization. This question is important because it can be used to interpret neighborhood incomes racial make-ups and opportunities available to residents. The method of research includes information collected from the 2000 census. Neighborhood maps of the city of Spokane were created from this data to show the level of wealth through the mean earnings of households in 1999 and the percentage of Latino or Hispanic residents within each neighborhood. The results of the research reflect that the Concentric Zone Theory is represented in Spokane. The areas closest to the Central Business District are those with the lowest income and the highest percentage of the Latino or Hispanic population. This theory is important in the use of predicting the social spatial organization of cities like Spokane.

Faculty Sponsor: Jennifer Holsinger

Abstract 17B
"Urban Growth and Who is Living Where in Spokane"
Nicole Geiger

How do cities grow and how does this process effect where people live? The Concentric Zone Theory seeks to explain why people of differing socioeconomic classes live where they do in any metropolitan area using a

series of rings radiating out from the city center. In this study I analyze the percent of people earning below the poverty level in Spokane according to the 2000 U.S. census. The census data shows that the downtown core has the highest level of poverty as predicted by the theory. However there are neighborhoods which extend out from the downtown to the north edge of town that do not follow a pattern of rings. The census data provides evidence for and against the Concentric Zone Theory suggesting that the theory is not universal and that other theories might be more applicable in the case of Spokane Washington.

Faculty Sponsor: Jennifer Holsinger

Abstract 17C
"Primary Social Ties in a Modern-Day City: A Case Study of the Chief Garry Park Neighborhood"
Kendria Dickson, Jeremiah Sataraka

The research question proposed in this study asks "How has the modern-day city affected the organization and strength of primary ties?" This study examines the impact of modern-day cities on the amount of social capital and community attachment in urban neighborhoods. Previous studies have shown that community attachment reflects how residents feel about their neighbors and their neighborhood which in turn influences such things as safety property values and risk of neighborhood decline. For this particular research the Chief Garry Park neighborhood in Spokane Washington was used as a case study to examine whether community attachment has been saved lost or liberated. The methods used were interviews conducted in the Chief Garry Park neighborhood. From the research we conclude that community has been saved. Although conditions in the neighborhood are not highly favorable to community attachment community exists in the neighborhood and the need for social capital continues.

Faculty Sponsor: Jennifer Holsinger

Abstract 17D

"Staying within the Lines: The Salvadoran Education System as a Contributor to the 'Coloring Book' Imagination"
Kelly Birch

In this study I examine ways in which the young Salvadoran's imagination is influenced by the Salvadoran education system using the critical educational theory of Paulo Friere. Based on observations I made while teaching English in a small Salvadoran community I explore educational mores and folkways and look at ways in which the Salvadoran imagination is constructed. In Friere's Pedagogy of the Oppressed the author argues against the "banking approach to education" in which education is a transaction from teacher to student dehumanizing all those involved and limiting critical thinking. Based on this theory and looking also at the youth groups and art and drama programs I find that the use of rote memorization and mimicry in the Salvadoran education system contributes to a limited imagination with the effect of keeping the oppressed from rebelling against oppressive hierarchical systems.

Faculty Sponsor: Vikas Gumbhir

Special Session 18
"Evidence of Learning in Student Voice"
Faculty Moderator: Kathryn Picanco
Panel: Michelle Bowzer, Randy Deganhardt, Kira Lazore, Angie Mossey, Aaron Ruff, Amber Smith, Diana Termer

Assesessment of student learning and growth is an essential part of every classroom. Teachers are looking for ways in which more effective assessment strategies can be used to maximize student learning. Specifically, teachers are seeking ways in which they can 1. personalize student learning in a high performance evidence-based education system, 2. develop the ability to gather evidence of learning in reflective student voice, 3. discover ways to engage students in the dialogue of learning, and 4. build on their articulated understanding. The research on student voice presented at this session is reflective of the work done over the past year in the Mead-Whitworth Partnership grant and action research studies conducted by MIT students. Collectively, the research presented highlights effective assessment strategies K-12 teachers can implement in their own classrooms.

Faculty Sponsor: Kathryn Picanco

Special Session 19
"Gender Performance in Victorian Literature and Culture"
Faculty Moderator: Pamela Corpron Parker

Abstract 19A
"The Wages of Womanly Sin in Victorian Literature"
Mary Rump

"The Wages of Womanly Sin in Victorian Literature" examines women within Victorian literature who deviate both domestically and sexually from established social norms. Within Victorian culture, propriety dictated that women stay within the private sphere and concern themselves with domestic virtue and duty. Obtaining formal education or expressing upwardly mobile class ambitions was considered unacceptable. I will argue that deviant female characters within *Mill on the Floss*, *Lady Audley's Secret* and "Lady of Shalott" challenged ideas of femininity and masculine dominance by straying from their "natural" roles. The ultimate deviant female figure, Lilith, serves as a template for the women's behavior when their domestic and sexual deviance merges. This violation of gender and class norms is ultimately punished with death. Though it can be argued that each work challenges feminine restrictions, none offers a favorable reconciliation or upholds women as being able to successfully deviate from the norm.

Faculty Sponsor: Pamela Corpron Parker

Abstract 19B
"The Manly Man Can't: Robert Audley's Viable Manhood"
Josh Swayne

"The Manly Man Can't: Robert Audley's Viable Manhood" examines the detective hero of Mary Elizabeth Braddon's *Lady Audley's Secret*. I will argue that Robert Audley, a notably effeminate loafer with homoerotic tendencies, provides an antithesis to the energetic masculinities put forward by Charles Kingsley and other nineteenth-century British writers. Nevertheless, Robert is the only male character in the novel to establish a stable middle-class home. Robert's version of manhood undermines hegemonic, middle-class masculinity because he achieves marital success and stability through homoerotic effeminacy. This paper will explore the process by which Robert's effeminacy ironically blossoms into agency as he searches for his murdered friend, George Talboys. The process by which Robert's homoerotic affection for George leads to his blissful marriage with George's sister will also be examined. Robert's success in the romantic/domestic spheres sheds an ironic light on the other masculinities in the novel, highlighting their incompetence, and hence their lack of viability. By making Robert a viable man, Braddon challenges nineteenth-century assumptions of essential maleness and middle-class ideas of morality and perversity.

Faculty Sponsor: Pamela Corpron Parker

Abstract 19C
"The Anti-Heroine in Victorian Literature"
Bailey Cavender

"The Anti-Heroine in Victorian Literature" studies the women that readers love to hate in literature of the Victorian period. These anti-heroines are so un-virtuous that readers are pulled into the story, in a way the more virtuous female characters sometimes do not. Through Choy, from Anna Leonowens' *Romance of the Harem* and Lucy Audley, from Mary Elizabeth Braddon's *Lady Audley's Secret* readers are introduced to women that were surely not ideal. Anti-heroines can be contrasted to other, more virtuous and likable women in Victorian literature, but all anti-heroines bring a challenge to Victorian ideals of femininity, whether they are found in prose or poetry, in works by male and female authors.

Faculty Sponsor: Pamela Corpron Parker

Abstract 19D
"Doomed Actresses in *Mill on the Floss* and *Lady Audley's Secret*"
Justin Lindborg

"Doomed Actresses in *Mill on the Floss* and *Lady Audley's Secret*" examines how the Victorian myth of the "Domestic Angel" in the works of George Eliot and Mary Elizabeth Braddon. *The Mill on the Floss* and *Lady Audley's Secret* each offer a central female character that serves as a tragic example of a woman in Victorian culture exerting feminine autonomy, yet failing because of societal constraints. Eliot and Braddon hold true to the implicit cultural command to represent characters realistically, but the result is not anything like their contemporaries likely expected. Their heroines seize the mirror of Victorian art, daring the observant reader to look closer and see past the cramped notion of convention to a much vaster concept of femininity.

Faculty Sponsor: Pamela Corpron Parker

Special Session 20
Guest Speaker: David Adams

Abstract 20A
"Oculocutaneous Albinism"

Oculocutaneous albinism (OCA) is an inherited condition resulting from reduced synthesis of pigment in the eyes, hair and skin. People with OCA have variably reduced visual acuity and variably decreased skin and hair coloration compared with other family members. There are currently four genes known to cause isolated oculocutaneous albinism. Several additional genes cause OCA plus other organ system dysfunction. The National Institutes of Health Oculocutaneous Albinism Natural History Study recruits volunteers with albinism to travel to the NIH campus for an extensive clinical and genetic workup. The goals of the study are to understand the development of albinism through the breadth of an affected person's life and to understand the genetics and cell biology of the pigment producing cell, the melanocyte. The study is new but has evaluated several participants to date. There has been a strong response from the albinism community and the accrual of new participants is proceeding rapidly. The current basic investigations are focusing on the molecular characterization of participant families. Functional assays are being developed to determine which DNA variations in the known genes are truly pathogenic as opposed to being non-pathogenic variants.

Abstract 20B

“Planning Careers in Graduate and Medical Education”

Students who are interested in careers in medicine and science face increasing competition for good training programs and research opportunities. Early planning of undergraduate research, internships, and other practical exposures will increase the chance that such exposures will be productive and useful. This workshop will provide students an opportunity to discuss their science or medicine career goals in an informal setting. Dr Adams [and other senior people, if available] will be available to discuss resources that are available to highly motivated learners. He [They] will also provide guidance as to how the learner can improve the outcome of such experiences

Abstract 21A
“Smart Medical Agents”
Zachary Hunter

Autism Spectrum Disorders range from mild to severe symptoms with lifelong impairment. Though there are controversial conjectures the cause remains unknown. The Smart Medical Agents project includes development of three tools oriented around identification evaluation and cause analysis of Autism. Agent-oriented processing and Bayesian Belief Networks provide the means for effective data analysis in this case the data being Autism patient data. This work focuses on the enhancement of functionality of the medical agents themselves and the implementation of specialized agents that focus solely on cause analysis. The medical agents must be capable of handling vast amounts of data corresponding to patient histories behavioral analysis genetic evaluations neurological and psychological tests. By performing such analysis we hope determination of common trends can contribute to the growing body of Autism research.

Faculty Sponsor: Susan Mabry

Abstract 21B
“Autism ‘Agents’”
Kayla Lewis

Though the cause of Autism Spectrum Disorders is unknown and the condition cannot be cured structured programs can help children adapt to the disorders and lead happy productive lives. Early recognition of Autism plays a crucial role in the treatment. The Smart Medical Agents system contains a module designed to allow pediatricians with limited knowledge of Autism to perform early screenings determining whether or not to refer the patient to a specialist. These screenings include automated questionnaires composed of questions that have been compiled by a group of Autism specialists. Rather than traditional yes-no answers our interfaces include slider bars lending more ease for parents as well as a more quantitative accuracy. With proper use of these interfaces a child would be screened for Autism on a regular basis. Information acquired in each screening is stored for further tracking. These interfaces play a key part in early diagnosis and tracking of Autism.

Faculty Sponsor: Susan Mabry

Abstract 21C
“Smart Med Agents: Standardizing Diagnosis and Treatment of Autism Spectrum Disorders Via Agent-Based Clinical Decision Support”
Alice Clawson

Autism Spectrum Disorders (ASDs) are complicated to diagnose and treat. There are a wide variety of symptoms that occur in varying degrees of severity; dozens of diagnostic tools that may not yield agreeing

results; and hundreds of treatments none of which work consistently for all patients. A patient may receive different diagnoses and treatment recommendations from each specialist they visit. Smart Med Agents (SMA) an agent-based clinical decision support system uses fuzzy logic and Bayesian inference networks to deliver diagnostic and treatment recommendations based on complex input that may vary greatly from patient to patient. Originally designed for evaluation of shock in trauma patients it is being extended to include modules for ASD screening diagnosis patient progress tracking and analysis and large-scale research. Such a system has the potential to introduce increased accuracy standardization and organization into the process of diagnosing and treating ASDs.

Faculty Sponsor: Susan Mabry

Abstract 21D
"Smart Med Agents"
Marcus Hagerott

This research was a continuation of the ERMA Intelligent Medical Agents System. This work involved converting a Java based multi-agent medical decision support system into the C# programming language and extending the functionality of this system for pediatricians in their diagnoses of potentially Autistic children. Agents were implemented as objects each having their own thread. Thread-based agents were preferred over a distributed architecture to decrease development time. In addition a Bayesian Networks based inference algorithm was implemented as a replacement for an external Bayesian analysis system. The Bayesian Belief Networks are employed to make predictions about the patients diagnoses based upon data collected about the patient's history and symptoms. In addition a graphical user interface for the creation of the Bayesian Networks used by the inference algorithm was developed.

Faculty Sponsor: Susan Mabry

Abstract 22A
"Du Bellay's Defense and the Renaissance in France"
Kelsey Toy

This presentation concerns French poet Joachim Du Bellay's work Défense et illustration de la langue française and its role in initiating France into the Renaissance. It explores the context of the Défense including key influences as well as the reasons for its production. The Défense's content and effect are considered and evaluated. Furthermore the events leading up to surrounding and following the Défense's appearance are discussed briefly. Cultural aspects including the reemergence of humanist and Platonist philosophy are explored in the context of the Renaissance. Finally the long-term influence of the Défense on the French language is investigated

Faculty Sponsor: Bendi Benson Schambach

Abstract 22B
"A Sociolinguistic Study of the French of Quebec and France"
Megan French

Sociolinguistics is the study of the aspects of society that bring about changes within a language. This presentation will focus on the study of sociolinguistics applied to the differences between the French spoken in Quebec and the French spoken in France. Various aspects of the Quebec culture and society will be examined in relation to their influence on the French language over the years.

Faculty Sponsor: Bendi Benson Schrambach

Abstract 22C
"The Literary Evolution of French Theatre"
Chelsea Leahy

This research covers French plays ranging from the 11th to 20th centuries. Each play is divided up into their different centuries or literary periods. My research explores the Middle Ages oral traditions and follows how each of these time periods continues with that tradition while evolving to create its own style that reflects the cultural social and/or political events of that century or literary movement. Some playwrights covered include Marie de France, Pierre Corneille Molière, Jean Racine, Victor Hugo and Eugãne Ionesco. Theatre genres covered are oral histories mystery plays farce tragedy comedy modern and theatre of the absurd.

Faculty Sponsor: Bendi Benson Schrambach

Abstract 22D
"Tristan & Isolde: A Legend Across the Ages"
Hailey Johnson

This research project examines the legend of Tristan & Isolde and how it has evolved over the course of history. The presentation will show how a legend that has been passed down from generation to generation since the time of the Celtic bards has survived the tides and changes of time and society. It also addresses the ways in which each written version was altered and updated in narrative style by its author in order to be presented to a audience or generation. There will be three main authors examined: Normand Bãroul, Marie de France and Thomas of England each from a different social background. Literary criticism and historical facts about the authors and these backgrounds will be used to examine several specific scenes from the legend in depth.

Faculty Sponsor: Bendi Benson Schrambach

Abstract 22E
"Horacio Quiroga: A Life Reflected Through Story"
Amanda Moos

This paper presents the life and work of Uruguayan author Horacio Quiroga. His writing style, characteristics, themes, and influences are discussed in order to demonstrate Quiroga's connection to the styles of Modernism and Criollismo. Select works by Quiroga are presented, and through the understanding of his life the reader will see how Quiroga's writing is inseparable from his own experiences.

Faculty Sponsor: Angeles Aller

Abstract 23A
"CODONS"
Eric Fode, Nathan Sargent

Our experiment was to either confirm or deny the usefulness of the program CODONS in a biological area of research. Our experiments revealed that while CODONS has potential to show similarities or differences in genes and also densities of nucleotide sequences in a gene the program is not practical to use for research yet. Our group has concluded that in CODONS' current state the extrapolation of information that is not already known is too difficult because the degree of control available to the user is too great. At the moment

CODONS' current use consists of visualizing known data to the user in a way that is not typical to the field of Biology. Our paper will expound on how these features can be used in biological research and how they may be used in their current state.

Faculty Sponsor: Kent Jones

Abstract 23B
"Designing for Testability in Software/Hardware Co-Design Systems"
Stephanie Reardon

Testing encompasses the entire process of software development, and is involved in every aspect. Design is no exception and in software/hardware co-design systems, testing in this phase is crucial to the overall development of the product. The creation of testable designs in developing complex software/hardware systems remains vital when boundaries blur and specific implementation processes of the design may be either hardware or software. Without testability, design flaws may escape detection until a product is in the hands of the users. Increased system complexity in software/hardware systems makes complete assessment of system integrity through black-box testing impossible. Structured design for test features aid in manufacturing and repair by significantly simplify design verification and creating products that function reliably throughout their operational life. Design for testability management systems mediate guidelines and techniques that can be incorporated throughout the normal design activity of development maintaining testability throughout the development process.

Faculty Sponsor: Peter Tucker

Abstract 23C
"Query Operator Scheduling in Data Stream Management Systems with Genetic Algorithms"
David Jackson

Data stream management systems have real time processing requirements; queries must be run within a specific time frame or their results become meaningless. Operator scheduling determines how much processing time each query or operator is allotted which affects the overall flow of the system. The schedule can be changed by switching the element order and the ratio of time each element receives as compared to others. This ordering is hypothesized to be an np-complete optimization problem since it is similar to multiprocessor scheduling which has been shown to be np-complete. Genetic algorithm techniques have been shown to be effective in approaching ideal solutions for np-complete problems as well as being appropriate for real-time optimization. We propose a scheduler algorithm utilizing genetic algorithm techniques with the goal of developing a system that can adapt to changes in its environment.

Faculty Sponsor: Peter A. Tucker

Abstract 23D
"Network Benchmark Comparison in Linux"
Tyler Carrington

We have compared network benchmarking tools ttcp netperf iperf and our own custom tool to determine the usability adaptability and accuracy relative to each other along with comparing the features bundled with each. For our comparison work we used two Fedora Linux computers directly connected via ten gigabit Ethernet and one gigabit Ethernet. We analysed our results and made conclusions on each tool's usefulness in a real world setting.

Faculty Sponsor: Patricia Crowley

Abstract 24A
"The Subaltern Speaks but in what language? Turkish Modernization through Modern and Postmodern Lexicons"
Kurt Guner

Most contemporary study of Turkish modernization has been focused on the exploits of Mustafa Kemal Ataturk... and rightfully so. However his decision to shift from an Arabic script to a Western inspired Latin alphabet hasn't received the attention it deserves. When couched within the split between modernism and postmodernism the decision to change alphabets takes on a much more significant meaning. By inspecting the history leading up to that decision the possible reasons for the shift as well as the impact of Orientalism on our previous history of the region Turkish modernization becomes a much more difficult case to categorize. This study attempts to reconcile Ataturk's modernization efforts through modern and postmodern schools of thought all the while investigating the chain of events required to bring about such a dramatic change.

Faculty Sponsor: Eric Cunningham

Abstract 24B
"Origins of Racism"
Jason Hogstad

This paper explores the origins of racial stereotypes of African cultures in western civilization by examining the changes in depictions of African cultures in European travel literature in the 16th century. Before this time travel literature relied heavily on second-hand accounts of mythical beasts outlandish customs and semi-human peoples. During their voyages to Africa European travelers such as Robert Gainish George Best Andre Thevet and Johannes Boemus unexpectedly encountered individuals far less different from themselves than was commonly believed. But instead of focusing on these similarities the works they published exaggerated physical differences such as skin tone and hair thickness and began to associate these differences with irrationality promiscuity and simple-mindedness. Through this belief that the physical determined the moral and intellectual capabilities of a person this literature created many of the racial stereotypes which plague society today.

Faculty Sponsor: Arlin Migliazzo

Abstract 24C
"Pacific Northwest Right Wing Extremism and Federal Efforts to Combat It"
Mark Trivett

"Why don't you send the children out for some pancakes, Mrs. Weaver?" Two members of the Weaver family were dead and two more seriously wounded. Periodically the backcountry silence was shattered outside the door where Vicki Weaver was killed hours before. Unprecedented levels of political violence in the Pacific Northwest were the result of increasing numbers of white supremacist advocates and isolation during the 1980s. Radical conservative organizations joined followers of a racist Christian theology to poise a serious domestic threat to the American government. These white supremacists utilized rural disparity and isolation to ferment a dialogue of racism and xenophobia. The Aryan Nations and other Northwest groups utilized religious fervor and personal resentment of minorities to create a culture of violence replacing the segregationist Klu Klux Klan as America's most active racial organization.

Faculty Sponsor: Fr. Michael Maher, S.J.

Abstract 25A
"Dancing with the Enemy: Spatial and Symbolic Boundary Maintenance in Social Dance"
Caitlin McKenna

This project is set in a unique Spokane dance venue and focuses on the physical emotional and symbolic facets of interaction between a few specific and prominent groups of dancers. I focus on how the differences in their goals styles and behavior are manifested and dealt with. What defines the rules of territory and interaction in the realm of modern social dancing? I propose that the combination of a variety of dance ideologies styles and intents in one venue will result in the prominent manifestation of first competitive behaviors and then a hybrid approach to every aspect of said dance. I detail the development of an amalgamous dance venue in a participant-observation ethnography done over several months and supplemented with both interviews and observations of other facets of the local social dance community.

Faculty Sponsor: Vikas Gumbhir

Abstract 25B
"TV Dinner"
Shawna Nordman

This performance research presentation demonstrates how theater and performance in general can be used as tools to effect change in a more abstract way. The piece is an intertextual (many texts fused together to impart a concept) that explores the relationship between television and modern culture performed by three students. It was originally performed in December of 2008 as the final project for Performance Theory and Practice. After the performance we will host a discussion on how theater can be used as a teaching tool and valid form of research presentation.

Faculty Sponsor: Diana Trotter

Abstract 26A
"Transfer Students: Nomads of Academia"
Christa Zinke

Transfer students now account for over ten percent of the Gonzaga University student population. Research on transfer students over the past forty years has found that they are generally less satisfied with their current university environments than students who began as freshman. However how specific factors (such as type and size of institution transferred from) impact transfer students are less understood. Using a self-administered questionnaire and a follow-up focus group my project explores the experience of transfer students and their overall satisfaction with the university they are now attending. I also investigate more fully how these specific factors influence transfer students satisfaction in terms of their overall student involvement perceptions of campus environment academics and financial aid.

Faculty Sponsor: Matthew Bahr

Abstract 26B
"Doing Right: A History of Behavior Policies at Whitworth"
Charles Loeffler

Since its founding in 1890 the behavioral policy of Whitworth College (now Whitworth University) has undergone many changes. Yet throughout its history this policy has continually appealed to the abstract value

of "doing right" the only behavioral expectation expressed in the College's first catalog. This study examines the development of Whitworth's behavioral policy as a consistent expression of trust in students to generally regulate their own behavior.

Faculty Sponsor: Raja Tanas

Abstract 26C
"Taking Academia to Municipal Government: The Challenges In Collaborative Research Projects"
Geoffrey Glenn

This paper explores the processes challenges and benefits to research collaborations involving academic faculty undergraduate students and public/governmental agencies.In late 2007 the City of Spokane Department of Solid Waste Management engaged in a study of its organizational cultural to better assess the impacts of departmental restructuring and managerial shift. To supplement its own resources and establish legitimacy the department entered into a collaborative agreement with Gonzaga University (GU) faculty and students Through observations and in-depth interviews over the course of seven months this case study explores the experiences of municipal staff and undergraduate students throughout the research process and examines the direct and ancillary benefits of collaborative projects to both institutions of higher learning and government agencies.

Faculty Sponsor: Vikas Gumbhir

Abstract 26D
"Paulo Freire: Development through Education"
Jeremy Molinaro

Paulo Freire was a Brazilian educator born in 1921, who taught Portuguese to illiterate poor Brazilians in order to comply with the literacy requirement to vote in Brazilian presidential elections. Freire's perspective on education is best understood in his own words: "There is no such thing as a neutral education process. Education either functions as an instrument which is used to facilitate the integration of generations into the logic of the present system and bring about conformity to it, or it becomes the 'practice of freedom', the means by which men and women deal critically with reality and discover how to participate in the transformation of their world." Freire's theories build a learning environment that does not merely recite historical fact, but instead empowers people to make responsible and ethical change. It views education as a means of societal development in justice, equality and peace.

Faculty Sponsor: Kim Hernandez

Abstract 27A
"The effectiveness of in-store samples on the purchasing behaviors of consumers among 18-23 years old and 35-55 years old"
Kelly Baker

Research shows that three-quarters of all retail purchase decisions are made in-store. One widely used method that stores use to encourage their consumers to purchase items is to sample their food product to the customer. This research compares and contrasts the amount of purchases made due to samples among the 18-23 years old and the 35-55 years old age groups. The effectiveness of product sampling on increasing sales of a specific sampled item and among what age group results in a purchased product will be examined. The importance of this research is to determine the impact of a sampled product on purchase behaviors within the month after

sampling. The information was collected by a questionnaire personal observation of the sampling process and actual sales numbers applicable to the sampled food products from retail food stores.

Faculty Sponsor: Brad Sago

Abstract 27B
"The effectiveness of an athlete endorser on the sale of popular sports drinks to the traditional college-aged student market?"
Stephen Stockton

When Coca-Cola pays two million dollars to Lebron James to endorse Powerade does the company get a good sales return on the investment? This study tests the level influence of an endorsement by a popular athlete on the purchase of a sports drink by college-aged students. With many types of sports drinks in the market how effective are endorsement deals with athletes on sales to the college student market? This research analyzes the reactions of a college aged student market. A questionnaire to traditional college-aged students (18-23 years old) was used to measure student thoughts on buying habits.

Faculty Sponsor: Brad Sago

Abstract 27C
"The effects that reality television dance shows have on dance department and dance studio attendance"
Porsha Fosse

Over the past five years reality dance shows have gained as many as 60 million viewers and continue to grow as new seasons air each year. Popular shows such as "So You Think You Can Dance" and "Dancing with the Stars" have served as inspiration for people to go out and learn how to dance. This research examines the social trends that watching these reality dance shows promote; and their impact on attendance and demand at local studios and university dance departments. A survey was distributed to teachers and students at local colleges and studios in order to assess how much growth is due to the influences of these shows. The results of this research serve to make the departments more aware of the social trends that can be used accordingly to further increase attendance.

Faculty Sponsor: Brad Sago

Special Session 28
"Teaching Sustainability"
Faculty Moderator: Kathryn Picanco

Mya Brooks: "Sustainable Design Curriculum"
Gina Baughn: "Environmental Education Opportunities in Spokane"

Sustainability is a critical element of curricular design in schools today. With the implementation of recent state initiatives requiring the inclusion of issues related to sustainability in the regular curriculum, teachers are seeking ways in which to provide meaningful and integrated learning opportunities. The two masters level curriculum design projects presented at this session will provide insights on two different approaches to teaching sustainability to students. One focuses on an integrated, project based learning approach. The other looks at local opportunities and organizations that can be utilized to enhance instruction. Together, the projects will provide insight on current research related to sustainability in education and practical and meaningful ways to address core issues.

Faculty Sponsor: Kathryn Picanco

Student Participants (with school name and presentation numbers)

Jessica Alexander (Whitworth) – 14B
Pamela Anderson (Whitworth) – 10B, 15C
Sarah Arpin (Gonzaga University) – 4B
Linh Aven (Whitworth) – 2A
Kelly Baker (Whitworth) – 27A
Chris Baldwin (Whitworth) – 14O
Gina Baughn (Whitworth) – 28B
Pamela Baula (Gonzaga) – 4B
Katrina Bayens (Whitworth) – 13C
Kellene Bergen (Gonzaga) – 2B
Daniel Bergman (Whitworth) – 14J
Kelly Birch (Gonzaga) – 17D
Michelle Bowzer (Whitworth) – 18G
Mya Brooks (Whitworth) – 28A
Chris Caldwell (Whitworth) – 9C
Katherine Carpenter (Whitworth) – 8B
Tyler Carrington (Gonzaga) – 23D
Bailey Cavender (Whitworth) – 19C
Alice Clawson (Whitworth) – 21C
Ryan Cloke (Gonzaga) – 10D
Erin Cooley (Whitworth) – 10C
Giselle Cunanan (Gonzaga) – 14X
Lindsay Dalby (Whitworth) – 13B
Randy Deganhardt (Whitworth) – 18F
Shiloh Deitz (Whitworth) – 3D
Matt Delsman (Gonzaga) – 14R
Holly Dembinski (Gonzaga) – 14T
Arianna Demmerly (Whitworth) – 10A
Julie Depner (Gonzaga) – 15A
Kendria Dickson (Whitworth) – 17C
Tami Dixon (Whitworth) – 7C
Andrew Durgan (Gonzaga) – 14S
David Ellis (Whitworth) – 14G
Addie Estes (Whitworth) – 1A
Eric Fode (Whitworth) – 23A
Angela Forney (Whitworth) – 5B
Porsha Fosse (Whitworth) – 27C
Erik Frandsen (Gonzaga) – 14C
Megan French (Whitworth) – 22B
Nicole Geiger (Whitworth) – 17B
Matthew George (Gonzaga) – 14K
Awbrey Gilliam (Whitworth) – 14F
Geoffrey Glenn (Gonzaga) – 26C
Adrian Grissom (Whitworth) – 13D
Kurt Guner (Gonzaga) – 24A
Marcus Hagerott (Whitworth) – 21D
Justin Hancock (Whitworth) – 7B
Brian Harms (Whitworth) – 14P

Katrina Hauck (Whitworth) – 14W
John Hauck (Whitworth) – 14AC
Jason Heide (Whitworth) – 6C
Spencer Hensley (Gonzaga) – 3B
Jason Hogstad (Whitworth) – 24B
Megan Houlihan (Gonzaga) – 12B
Zachary Hunter (Whitworth) – 21A
Paige Hurtig-Crosby (Gonzaga) – 4 D, 14A
Sarah Huyck (Whitworth) – 16C
John Ingels (Gonzaga) – 4C
David Jackson (Whitworth) – 23C
Marissa Johnson (Whitworth) – 12C
Hailey Johnson (Whitworth) – 22D
Calvin Jurich (Whitworth) – 7D
Kyle Kamaiopili (Whitworth) – 1B
Samantha Keenan (Whitworth) – 5E
Kirstie Keller (Gonzaga) – 2C
Justine King (Whitworth) – 3A
James Lagucik (Whitworth) – 14AD
Kari Lanham (Whitworth) – 14Y
Kira Lazore (Whitworth) – 18A
Chelsea Leahy (Whitworth) – 22C
Kayla Lewis (Whitworth) – 21B
Kathleen Lilleness (Whitworth) – 14Q
Jasmine Linabary (Whitworth) – 9B, 3C
Justin Lindborg (Whitworth) – 19D
Charles Loeffler (Whitworth) – 26B
Luis Lopez (Whitworth) – 12A
Isaac Lutz (Whitworth) – 14AB
Kristin Macauley (Gonzaga) – 4C
Kayla Maddy (Whitworth) – 14Y
Zennetta Mann (Gonzaga) – 14Z
Patsy Marshall (Whitworth) – 4A
Andrea Mason (Whitworth) – 17A
John Maxwell (Gonzaga) – 6D
Caitlin McKenna (Gonzaga) – 25A
Alex Mitchell (Whitworth) – 2A
Jeremy Molinaro (Whitworth) – 26D
Amanda Moos (Whitworth) – 22E
Benjamin Moresco (Whitworth) – 1H, 14I
Angie Mossey (Whitworth) – 18E
Zachariah Mullen (Whitworth) – 15D
Shawna Nordman (Whitworth) – 25B
Emily O'Dean (Whitworth) – 6B
Kellen Oetgen (Whitworth) – 14AA
William Ohlstrom (Gonzaga) – 14U
Stephanie Oswald (Gonzaga) – 3B
Kathryn Pridgen (Whitworth) – 1C
Aaron Quigley (Whitworth) – 9A
Daniel Raible (Whitworth) – 2D, 14N, 14V

Stephanie Reardon (Whitworth) – 23B
Daniel Repsold (Whitworth) – 14N
Laura Robison (Whitworth) – 8B
Whitney Rostad (Gonzaga) – 4D
Aaron Ruff (Whitworth) – 18B
Mary Rump (Whitworth) – 5D, 19A
Mary Rupert (Whitworth) – 7A
Nathan Sargent (Whitworth) – 23A
Jeremiah Sataraka (Whitworth) – 17C
Leah Schwiesow (Gonzaga) – 14C
William Sehorn (Whitworth) – 8C
Mahyo Seyedali (Whitworth) – 14AA
Alyson Shaffer (Whitworth) – 14G
Lucas Sharma (Gonzaga) – 16B
Katherine Shaw (Gonzaga) – 14Z
Jessica Smalley (Whitworth) – 14D
Amber Smith (Whitworth) – 18C
Kevin Sonnanburg (Whitworth) – 8D
Jesse Spaun (Whitworth) – 14P
Allison Spencer (Whitworth) – 13A
Ninita Sporseen (Whitworth) – 9A
David Sprenkle (Whitworth) – 6A
Heather Stevens (Whitworth) – 16A
Stephen Stockton (Whitworth) – 27B
Josh Swayne (Whitworth) – 19B
Tim Takechi (Whitworth) – 9B
Chase Talbot (Whitworth) – 14L
Diana Termer (Whitworth) – 18D
Karolynn Tom (Whitworth) – 14AB
Kelsey Toy (Whitworth) – 22A
Katherine Tremayne (Whitworth) – 15B
Mark Trivett (Gonzaga) – 24C
Sarah Tunall (Whitworth) – 9A
Matt Velinder (Gonzaga) – 14C
Heather Wallace (Whitworth) – 5A
Amy Watts (Whitworth) – 14Y
Kristen Weakly (Gonzaga) – 14C
Derek Weyhrauch (Whitworth) – 14M
Charity Whitney (Whitworth) – 5C
Emily Whitney (Whitworth) – 14E
Stephanie Wipf (Whitworth) – 7E
Taeko Yoneyama (Whitworth) – 8A
Christa Zinke (Gonzaga) – 26A

Faculty Sponsors and Moderators

Angeles Aller – Spanish, Whitworth
Matthew Bahr – Sociology, Gonzaga
Monica Bartlett – Psychology, Gonzaga
Julie Beckstead – Biology, Gonzaga
Kirk Besmer – Philosophy, Gonzaga
Richard Bishop – Mathematics, Whitworth
Kerry Breno – Chemistry, Whitworth
Patricia Bruininks – Psychology, Whitworth
Drew Budner – Chemistry, Whitworth
Frank Caccavo – Biology, Whitworth
Jillian Cadwell – Civil Engineering, Gonzaga
Matt Cole – Political Science, Gonzaga
Matthew Cremeens – Chemistry, Gonzaga
Patricia Crowley – Computer Science, Gonzaga
Eric Cunningham – History, Gonzaga
William Ettinger – Biology, Gonzaga
Vikas Gumbhir – Sociology, Gonzaga
Kim Hernandez – Spanish, Whitworth
Craig Hinnenkamp – Economics and Business, Whitworth
Jennifer Holsinger – Sociology, Whitworth
Kent Jones – Computer Science, Whitworth
Lisa Laurier – Education, Whitworth
Susan Mabry – Computer Science, Whitworth
Fr. Michael Maher, S.J. – History, Gonzaga
Jim McPherson – Communication Studies, Whitworth
Anna Marie Medina – Psychology, Gonzaga
Arlin Migliazzo – History, Whitworth
Alan Mikkelson – Communication Studies, Whitworth
Deanna Ojennus – Chemistry, Whitworth
Pamela Corpron Parker – English, Whitworth
Kathryn Picanco – Education, Whitworth
Donna Pierce – Mathematics, Whitworth
Finn Pond – Biology, Whitworth
Brad Sago – Economics and Business, Whitworth
Kamesh Sankaran – Physics, Whitworth
Mike Sardinia – Biology, Whitworth
Bendi Benson Schrambach – French, Whitworth
Gerald Sittser – Theology, Whitworth
Corliss Slack – History, Whitworth
Dale Soden – History, Whitworth
Melissa Sprenkle – English, Whitworth
Doug Sugano – English, Whitworth
Brook Swanson – Biology, Gonzaga
Raja Tanas – Sociology, Whitworth
Diana Trotter – Theater, Whitworth
Craig Tsuchida – Biology, Whitworth
Peter Tucker – Computer Science, Whitworth
Joe Vigil – Communication Studies, Whitworth

Jeffrey Watson – Chemistry, Gonzaga
Noelle Wiersma – Psychology, Whitworth
Betty Fry Williams – Special Education, Whitworth
Randy L. Williams – Special Education, Gonzaga
Nicholas Willis – Mathematics, Whitworth
John Yoder – Political Science, Whitworth