WESTERN CONNECTICUT STATE UNIVERSITY

WestConn Research Day

May 8, 2008

Program

Luncheon with Seminar Presentations *Midtown Campus Student Center Room 201*	12:00 PM – 1:30 PM
Registration and Poster Setup *Science Building Atrium*	1:00 PM – 2:00 PM
Opening Session and Keynote Address *Science Building Room 125*	2:00 PM – 2:30 PM
Poster Session *Science Building Atrium*	2:30 PM – 4:00 PM
Concluding Remarks and Awarding of Prizes *Science Building Room 125*	4:00 PM – 4:30 PM

Refreshments will be served during the poster session in the Atrium of the Science Building.

KEYNOTE ADDRESS

Dr. Joseph Reish

Dean of University Libraries

Western Michigan University

"The Long and Winding Road to Eureka"

The WRD Committee is pleased to introduce Dr. Joseph Reish as our 2008 keynote speaker.

Dr. Reish, who was educated in both the United States and France, received his Ph.D. in Eighteenth-Century French Literature from the University of Wisconsin in Madison, Wisconsin, in 1972. He has worked at Western Michigan University since 1983 as a faculty member; an Assistant Director, Associate Dean, Interim Dean and Dean of the Carl and Winifred Lee Honors College; and as an Interim Dean and Dean of University Libraries. Through his work for the Honors College and as a member of the executive board of the National Conference on Undergraduate Research, Dr. Reish is experienced in supporting, supervising and evaluating undergraduate research from different academic disciplines.

Dr. Reish is the author of numerous articles and has received many awards including being named an Honors Faculty Fellow of the Carl and Winifred Lee Honors College, an Honorary Member of the National Freshman Honorary Alpha Lambda Delta, and a Selected Member of the Michigan Library Consortium. He is also a Chevalier des Palmes Academiques.

Aside from his interests in French culture studies, language and literature; Dr. Reish is also interested in music, art and theater.

Student Participants

Undergraduate Students

Abstract #	Name(s)	Session
1	Taylor Balletto	Poster
2	Matt Buchta and Mike Shoushani	Poster
3	Matt Buchta and Yubin Wang	Seminar
4	Thomas Butler	Poster
5	Alexis Carrrera and Jeanne Mello	Seminar And Poster
6	Shannon Cawley	Poster
7	Nuno Costa	Poster
8	Peter Csere	Poster
9	Russell Daniels	Poster
10	Sarah Decker and Adrienne Ostrove	Poster
11	Richard Dzienis	Poster
12	Thomas Edson	Poster
13	Jennifer Erichsen and Ann Vecchiariello	Poster
14	Jessica Fairchild and Jonathan Rosario	Poster
15	Brittany Fignar	Poster
16	Dawn Fletcher	Poster
17	Ashley Friedman	Poster
18	Deanna Golino and Michelle Norbeau	Poster
19	Erik Gundel	Poster
20	Chelsea Higgins	Seminar
21	Kristin Hulet	Poster
23	Anita Jayavikraman	Poster
25	Jessica Leonard and Lisa Colon	Poster
26	Meredith Liberto	Poster
27	Meredith Liberto	Poster
28	Paulo Machado	Poster
29	Jeanne Mello and Alex Carrera	Poster
30	Kerrilee Niles	Poster
31	Jamie O'Brien and Calla Schon	Poster
32	Adrienne Ostrove and Sarah Decker	Poster
34	Jeff Pioli	Poster
35	Christopher Prorock	Poster
36	Matthew Renfer	Poster
37	Troy Searcy	Poster
38	Stephanie Shorey	Poster
39	Joanne Sierra, Novlet Fidler, Siliva Ertl-Islam and James Cristantiello	Seminar
40	Ann Vecchiariello and Jennifer Erichsen	Poster
41	Heather Walsh and Samantha Fennell	Poster
42	Amanda Weise	Poster
43	Benjamin Woodhouse and Arjumond Khan	Seminar

Student Participants
Graduate Students

Abstract #	Name(s)	Session
22	Nancy Jacob	Seminar
33	Monica Perry	Poster

Student Participants
Doctoral Students

Abstract #	Name(s)	Session
24	Frank LaBanca	Poster

Faculty Participants
Research Sponsors

Faculty	Department
Dr. Carol Avery	Nursing
Dr. John Coleman	Management
Dr. Marcia Delcourt	Education and Educational Psychology
Dr. Frank Dye	Biological and Environmental Sciences
Dr. Robin Flanagan	Psychology
Dr. Ruth Gyure	Biological and Environmental Sciences
Dr. Laurel Halloran	Nursing
Dr. Josie Hamer	Mathematics
Dr. Paul Hines	Chemistry
Dr. Norine Jalbert	Psychology
Dr. Susan Maskel	Biological and Environmental Sciences
Dr. Alycen Nigro	Chemistry
Dr. Lydia Novozhilova	mathematics
Dr. C. Thomas Philbrick	Biological and Environmental Sciences
Dr. Theodora Pinou	Biological and Environmental Sciences
Dr. Patrick Ryan	Writing
Dr. Paula Secondo	Chemistry
Dr. Xiaodi Wang	Mathematics
Dr. Steven Ward	Social Sciences
Dr. Katy Wiss	Communications

Abstracts

Poster Presentations

listed in alphabetical order by first author

1 A STUDY OF COMMUNICATION FACTORS AND ROOMMATE RELATIONSHIPS

Taylor Balletto (Dr. Katy Wiss, Dept. of Communications)

College is one of the many transitional stages in an individual's life in which they are often thrown into an unfamiliar environment with unfamiliar faces. This study analyzes the relationships between college roommates and the communication factors that affect the relationship: positively or negatively. A total of 43 subjects were asked to complete a survey in which they were as honest as possible about their current roommate relationship. Three different categories of descriptors were coded for analysis. The results indicate that roommates who were randomly placed together did not have as successful of a relationship as those who were previously friends and those who lived with family members had no choice but to make ends meet due to the relationship. Additionally, roommates who were previously friends were more comfortable with each other as compared to those randomly assigned and therefore were more open to conflict resolution. The study reveals that the type of relationship among roommates affects the communication factors used in conflicting situations.

2 STATISTICAL ANALYSIS OF WCSU MATHEMATICS CLINIC USAGE

Matt Buchta and Mike Shoushani (Dr. Josie Hamer, Dept. of Mathematics)

This work examines a pattern of clinic patronage throughout the day to see if this pattern follows a statistical distribution. We will analyze surveys submitted throughout the academic year. We intend to develop a parametric regression formula to predict clinic population based on time of day and day of the week. We will demonstrate the relative frequencies of students who attend the clinic for a specific course.

4 TELEVISION FAMILIES IN THE 1990'S AND 2000'S: A CONTEMPORARY ANALYSIS

Thomas Butler (Dr. Katy Wiss, Dept. of Communications)

There have been numerous investigations launched over the years to determine the communication patterns that have evolved among television families and how they may be a reflection of families in real life. Episodic analysis of eleven family series airing over the past twenty years was conducted. Findings include growing influences of extended family members, the pro-social nature of television families with respect to messages conveyed to the viewer, the growing preponderance of confrontation and deception taking place amongst family, and an eclectic array of responses to familial interactions ranging from confrontation to bonding through activity.

6 HEMOPHILIA A: ITS MOLECULAR BASIS AND TREATMENT IN DEVELOPING COUNTRIES

Shannon Cawley (Dr. Alycen Nigro, Dept. of Chemistry)

Hemophilia A is an X-linked recessive disease that is caused by a mutation in the F8 gene which encodes for the coagulation factor VIII protein. The factor VIII protein is involved in the clotting process of the blood. The most common treatment in developed countries is an intravenous infusion with factor VIII protein concentrate immediately following trauma. Another treatment option is DDAVP (1-deamino-8-D-arginine vasopressin), which can also be used in developing countries. This study examined the molecular basis for hemophilia A and its treatment in developing countries versus those in developed countries.

7 DEVELOPMENT OF A NEW SYNTHETIC ROUTE FOR HETEROCYCLIC RING SYSTEMS WHICH ARE EXPECTED TO EXHIBIT POTENT ANTIHISTAMINIC AND ANTIFIBRILLATORY MEDICINAL PROPERTIES

Nuno Costa (Dr. Paul Hines, Dept. of Chemistry)

Two generations of antihistamines highlighted the very specific structure-function relationship within biological molecules. The structural feature of two nitrogen atoms in a ring system, separated by two carbons, introduced by the second generation of such drugs evidenced the relation between selectivity and adverse effects. The goal of this project was the development of a synthetic route for the precursor ethyl-2-piperazinecarboxylate (V) of a heterobicyclic ring system.These results may contribute to a better understanding of the binding site and lead to better drug design.

8 KAKEYA NEEDLE PROBLEM

Peter Csere (Dr. Lydia Novozhilova, Dept. of mathematics)

A problem that mathematicians have been trying to solve is: what is the smallest-area plane figure inside which a unit straight line segment can be rotated through 180°?
In 1928, the Russian mathematician Abram Besicovitch shocked the mathematical world by showing that there is no minimum area for a figure having this property; the area can be as small as you wish. We will present the Besicovitch solution furnished with
original Maple animations.

9 PHYTOREMEDIATION OF MERCURY-CONTAMINATED SOIL INNOCULATED WITH BURKHOLDERIA CEPACIA ENCODED WITH THE MER A GENE

Russell Daniels (Dr. Ruth Gyure, Dept. of Biological and Environmental Sciences)

This study was conducted to investigate the remediation advantage of inoculating four treatment soils with Burkholderia cepacia encoded with MerA. The four treatments were mercury soil, radish, barley, and winter wheat-berry. The bacteria used is known to be mercury resistant. The MER A gene codes for the production of mercuric reductase. This protein transforms ionic mercury (Hg+2) into elemental mercury. Once in its elemental state mercury will volatilize, removing it from the immediate environment. The hypothesis being tested is: will soils inoculated with mercury resistant Burkholderia cepacia show more significant reduction of mercury than the control groups?

10 THE EFFECTS OF UNCONSCIOUS STEREOTYPES ON BEHAVIOR

Sarah Decker and Adrienne Ostrove (Dr. Robin Flanagan, Dept. of Psychology)

Past research has suggested that people can be unconsciously influenced by words. To test the unconscious influence of words, twenty college students were given either a random list of words or a list that contained some anxiety related words and had to write sentences using these words. After writing sentences, the subjects were timed leaving their cubicle to exiting the experimental room. Our hypothesis was that students who were randomly assigned to write sentences pertaining to anxiety would walk more quickly to the door, indicating unconscious processing about anxiety. Results showed no significant difference between the control and the experimental group. Our hypothesis was not supported though subjects did walk slightly faster when exposed to anxiety words. A follow-up study with more participants may show that this is a reliable effect.

11 THE EFFECTS OF EXTERNAL PRESSURES APPLIED TO FOOT-IN-THE-DOOR COMPLIANCE TECHNIQUES

Richard Dzienis (Dr. Norine Jalbert, Dept. of Psychology)

The Foot-in-the-Door compliance (FITD) technique suggests that a person is more likely to comply to a large request when a modest request is complied with first. It is hypothesized that the presence of a person observing a FITD simulation will cause an increased rate of compliance when compared to a control group or a regular FITD group. The psychological processes of self-perception theory, cognitive dissonance, commitment, and consistency needs support this prediction. There was a significantly higher rate of compliance in the manipulated (observer) FITD group when compared to the other groups.

12 MORPHOMETRIC ANALYSES OF LEAF FORM VARIATION IN MEXICAN AND CENTRAL AMERICAN MARATHRUM (PODOSTEMACEAE).

Thomas Edson (Dr. C. Thomas Philbrick, Dept. of Biological and Environmental Sciences)

Marathrum is a common genus of water plants in Mexico and Central America, although the actual number of species that exist is debated. Species can purportedly be distinguished based on differences in the structurally complex leaves. We conducted morphometric analyses to test the hypothesis that more than one species can be recognized based on leaf variation. Fifty-two leaf measurements were taken from specimens representing 25 populations, and cluster and principle components analyses conducted. Results failed to reveal consistent groupings; the hypothesis was rejected. An alternative hypothesis is proposed: A single species occurs in Mexico and Central America.

13 THE EFFECT OF CHOICE ON RECALL

Jennifer Erichsen and Ann Vecchiariello (Dr. Robin Flanagan, Dept. of Psychology)

Our society values freedom of choice. It motivates many of us and introduces a variety of different elements into our lives. This study investigates how choice has an effect on the ability to recall information. Using a convenience sample of twenty WCSU students, individuals in the experimental group were given the choice to read the excerpt themselves or have the researchers read it aloud with them. The control group was also given these choices but their choices were rejected soon after and told how to read the excerpt. A quiz then measured how much information was recalled. A statistical analysis showed a non-significant difference in the groups' scores.

14 MUSIC'S EFFECT ON READING COMREHENSION

Jessica Fairchild and Jonathan Rosario (Dr. Robin Flanagan, Dept. of psychology)

We performed a study to investigate the effects of different background music on reading comprehension. Participants consisted of 28 Western Connecticut State University students. Three levels of treatment were used including hip-hop music, classical music, and silent background. The level of comprehension was tested by a reading comprehension questionnaire. The results indicate that although there was a slightly higher mean with classical music, there was no significant statistical difference between the 3 levels. The data suggests that background music has no impact on the level of comprehension.

15 AN EXAMINATION OF THE EFFECTS OF NO CHILD LEFT BEHIND ON CHILDREN PURSUING HIGHER EDUCATION

Brittany Fignar (None Steven Ward, Dept. of Sociology/honors)

This project examines the effects of no child left behind on students who are pursuing higher education. It looks at themes such as 'teaching to the test' and how standardized testing impacts students later on in their educational journey. Results will be presented.

16 ACADEMIC ADVISEMENT: HELP OR HINDRANCE

Dawn Fletcher (Dr. Steven Ward, Dept. of Social Sciences)

The purpose of this study was to examine both the overall level of satisfaction with advising and the factors that contributed to advising satisfaction. The participants, 74 WCSU undergraduate students, who completed a modified survey containing 41 questions, focused on the student's expectation of the academic advisement process as it related to their experience at WCSU. Preliminary results indicated most students were moderately satisfied with the academic advisement received. However, most reported their advisor relationship was less than satisfactory during the advisement process. Further research could include the academic advisor for a cross-comparison.

17 DOES MENTAL PREPARATION HELP ATHLETES PERFORM BETTER?

Ashley Friedman (Dr. Norine Jalbert, Dept. of Psychology)

This experiment investigated the effect of mental preparation on a physical task. Forty college students were given a chance to make a hole-in-one putt. Twenty participants in group one were given a visualization exercise where they were asked to imagine themselves getting a hole in one and then asked to putt. Twenty participants in group two were only asked to putt without any mental preparation. The 20 participants who used visualization before their putt did slightly better than the 20 participants who did not use visualization. However, the results showed that there was no significant difference between the two groups.

18 ANALYSIS OF NDA PRELIMINARY RESULTS FROM 2007 & 2008: USING REGRESSION

Deanna Golino and Michelle Norbeau (Dr. Josie Hamer, Dept. of Mathematics)

Regression analysis is used to predict a future data set Y from a given data set X , and then compare the estimated Y with the actual. Based on the regression equation we looked to see if the 2007 National Dance Alliance preliminary results for Division 1, Division 1A, and Division 2 Collegiate Dance Teams in 2007 predicted their preliminary results in the 2008 competition. The study further compared the estimated scores to the actual 2008 scores to test if the data were a good fit for least squares regression.

19 PREDICTING MOBILE HOME INSURANCE PURCHASE: A REGRESSION MODEL

Erik Gundel (Dr. Josie Hamer, Dept. of Mathematics)

The purpose of this project is to explore the mathematics behind the statistical topics of regression and correlation. A data set consisting of 1000 sample records concerning mobile home owners was used to predict whether a customer is interested in buying a mobile home insurance policy. Information about customers consists of 86 variables and includes product usage data and socio-demographic data derived from zip codes. Using correlation to create a subset of these variables, a regression model was created to more accurately predict which mobile home owners will buy insurance.

21 EFFECTS OF FAIR TRADE CLIPS ON ENVIRONMENTALLY CONSCIOUS BEHAVIORS

Kristin Hulet (Dr. Norine Jalbert, Dept. of Psychology)

In this study I determined whether environmentally conscious behaviors (ECB) were affected by seeing images of farmers working in poor or thriving environments or listening to facts. College volunteers were asked to watch either a video clip, "You Can Make a Difference with Fair Trade," developed by Trans Fair USA (2004) or an interview, "Impact of Fair Trade," developed by Link TV. After watching the videos, participants were given a survey to test their recall about the film, but this request was just part of the cover story. Participants were told about a petition and a way to make contact for more information on fair trade. I hypothesized that after watching the fair trade working environment video clip, participants would be better aware of their ECB than those participants who watched the interview about fair trade. I measured ECB by seeing how many participants signed the petition or emailed to find out more about fair trade. My hypothesis was not supported by the results. The interview showed a higher ECB than the video clip.

23 PYRAZINE COORDINATION POLYMERS OF GROUP 12 THIOCYANATES

Anita Jayavikraman (Dr. Paula Secondo, Dept. of Chemistry)

Three novel complexes all with multidimensional frameworks containing Group 12 metals linked by pyrazine and thiocyanate ligands have been prepared. The complexes reported here are [Zn(NCS)2(Pyz)2]n (1), [Cd(NCS)2(Pyz)]n (2) and [Hg(NCS)2(Pyz)]n (3) and were characterized by elemental analysis, mid- and far-range FT-IR, and 1H and 13C NMR spectroscopy. Fluorescence properties have been investigated. Structures of all three compounds have been confirmed by single crystal x-ray diffraction. The 2-D zinc structure consists of a distorted N6 octahedral comprised of bridging pyrazine moieties and pendant thiocyanate ligands. The Cd and Hg coordination polymers consist of an N4S2 distorted octahedral kernel with pyrazine molecules bridging along the y-axis and the double-chain thiocyanate bridging in the x and z directions creating a 3-D ladder-type structure.

24 INSTRUCTIONAL LEADERSHIP: THEORY INTO PRACTICE

Frank LaBanca (Dr. Marcia Delcourt, Dept. of Education and Educational Psychology)

Instructional Leaders provide a necessary link between educational research and practice. Example poster presentations from the first Cohort for the Doctor of Education in Instructional Leadership program will be displayed. Abstracts from 15 dissertations will be provided including topics such as the impact of problem finding in science, the effect of literacy coaching, students' perceptions of mathematical self-efficacy, and the effects of a collaborative teaching model.

25 DIFFERENCE BETWEEN TWO MEANS: A COMPARISON OF INFANT MORTALITY RATES AROUND THE WORLD OVER A TWO YEAR TIME PERIOD

Jessica Leonard and Lisa Colon (Dr. Josie Hamer, Dept. of Mathematics)

Testing the difference between two means allows you to determine if the mean of one population is significantly different from another. Our project will discuss the two-sample statistical test from both a theoretical standpoint and with an example using existing data. The data we will use is infant mortality rates from various countries around the world for two different years.

26 APPLICATION OF RNA INTERFERENCE IN HIV THERAPIES

Meredith Liberto (Dr. Alycen Nigro, Dept. of Chemistry)

RNA interference mediated by short interfering RNAs is a newly developing area of pharmaceutical research and gene therapeutics. Using cultured cells, RNAi has proven to be effective against numerous viruses such as influenza, hepatitis C, and polio. Advances in HIV1 inhibition using RNAi have been reported extensively and continue to undergo validation. This project explores the discovery, mechanism, and gene therapies involving RNA interference. Particular attention will be paid to application of RNAi against HIV infection and the use of synthetic siRNAs as potential antiviral drugs.

27 COORDINATION CHEMISTRY OF THE ZINC THIOCYANATE COMPLEX CONTAINING THE 4-CHLOROPYRAZOLE MOIETY

Meredith Liberto (Dr. Paula Secondo, Dept. of Chemistry)

The compound [Zn(NCS)2(4-ClPyz)2] was prepared by two different synthetic methods and characterized by elemental analysis, mid- and far-IR and 1H NMR spectroscopy. Structural conformation of the compound has been confirmed via single crystal x-ray diffraction. The distorted tetrahedral arrangement around the central Zn atom is comprised of an N4 kernel derived from two thiocyanate ions coordinated at the nitrogen end and two 4-chloropyrazole molecules bound through the pyridyl-type nitrogen. In comparison with other 4-halogenated pyrazoles, the highly electronegative chloro group on the 4-chloropyrazole ligand serves as a conduit for a unique packing arrangement and promotes extensive hydrogen bonding.

28 THE EFFECT OF CELL PHONE USE ON REACTION TIME TO AUDITORY AND VISUAL STIMULI

Paulo Machado (Dr. Susan Maskel, Dept. of Biological and Environmental Sciences)

As of February 2008, more than 254 million people in the United States have cellular telephones. Many people use their phones for text messaging or talking while performing other tasks such as walking or driving. This study uses a BIOPAC MP35 to compare reaction times to auditory and visual stimuli of thirty two students, staff and faculty at Western Connecticut State University with and without cell phone use. Reaction time decreased or reactions were absent when cell phones were used. These results have implications in terms of the safety of cell phone use while walking, crossing streets or driving.

29 MEDIA INFLUENCE ON MOOD

Jeanne Mello and Alex Carrera (Dr. Robin Flanagan, Dept. of Psychology)

Many people are influenced by the media nowadays; mood is influenced by what one watches on screen. In the study we measured how mood is affected by images. We hypothesized that people who viewed negative images will be more pessimistic than those who viewed positive images. We conducted an experiment where participants were either subjected to a positive group where they saw happy images or a negative group where they saw sad and violent images and they were rated afterwards. The results showed that there was a significant difference between groups. The pessimistic group scored significantly lower on a positive scale. The results imply that the mood is affected by the media and by what one watches on screen.

30 THE EFFECTS OF AUDIO READING ON READING COMPREHENSION

Kerrilee Niles (Dr. Norine Jalbert, Dept. of Psychology)

There have been many discussions about the development and improvement of reading comprehension. The effects of audio reading on reading comprehension were examined in this experiment. There were three groups in this experiment. The first group received the written story, the second group listened to a voice recording of the story, and the last group listened to the voice recording while reading along with the story. Each of the groups was given the same reading comprehension test to measure their understanding of the short story. The 60 participants were students from WCSU. Significant differences consistent with the hypothesis were found.

31 PERSONAL SPACE

Jamie O'Brien and Calla Schon (Dr. Robin Flanagan, Dept. of Psychology)

Personal space is a key to comfort level for people. To test this belief, Western Connecticut State University students completed a survey about their comfort level. There were two different conditions; one in which the participant sat across the table from the experimenter, and one in which the participant sat directly next to the experimenter. The participants were asked a series of questions irrelevant to the experiment and then were asked to rate their level of comfort during the experiment. In contrast to previous findings, the difference between the comfort levels in each condition was not significant. Possible reasons for lack of significant results and implications for future suggestions are discussed.

32 EFFECTS OF CONTEXT ON JUDGMENTALISM

Adrienne Ostrove and Sarah Decker (Dr. Robin Flanagan, Dept. of Psychology)

The judgments we make about others' behavior are often formed without much thought. Previous research has suggested that by priming an individual with contextual information prior to their interpretation of a situation, perceptions may be affected. In this study, subjects read a vignette about a mother who committed a crime. By randomly pairing the vignette with the title of either 'Excuses' or 'Desperation', the subject was expected to rate the crime as more or less severe, respectively. No effects from this manipulation were found. Some potential confounds as well as suggestions for future research are discussed.

33 RELATIONSHIP OF NURSE TO PATIENT RATIO, LENGTH OF STAY, AND NURSING BURNOUT ON TWO UNITS

Monica Perry (Dr. Carol Avery, Dept. of Nursing)

Nursing is noted to be among the top ten most stressful jobs. Consequently, understanding burnout is a major concern with the nursing profession. The purpose of the study was to investigate the relationship of nurse to patient ratio, length of stay, and the degree of nursing burnout on a cardiac unit and a rehabilitation unit. This study was a descriptive comparative research study and used a convenient sample. Based on statistical analysis there were significance between the two units (cardiac unit and rehabilitation unit) and in their burnout scores.

34 POPULATION STRUCTURE AND GROWTH RATES OF MAUREMYS RIVULATA

Jeff Pioli (Dr. Theodora Pinou, Dept. of Biological and Environmental Sciences)

Population size, differences in population structure, and growth rates for Mauremys rivulata is examined in natural and artificial wetlands using mark and recapture techniques. Mark and recapture data collected over four years was compared to new data to estimate population sizes, growth rates, and population dynamics. Twenty- two recaptures from Pombia and eight recaptures from Almyros were used to determine growth. Results on growth rates are compared to a M. rivulata population study done in Jordan and differences between artificial and natural wetlands are discussed. This study contributes to our understanding of the species' natural history and turtle biology in general.

35 THE EFFECTS OF PERCEIVED AUTHORITY ON CONFORMITY

Christopher Prorock (Dr. Robin Flanagan, Dept. of Psychology)

The effects of perceived authority on social conformity was measured. We hypothesized that participants would conform under the condition of perceived authority. To measure this, we gave both a control group and an experimental group the same test which featured fictional statistics as to how previous participants selected their answers. The condition of an experimenter wearing a lab coat was used to communicate a sense of authority. Results indicated that the role of an authority figure plays a significant role in getting participants to conform to selecting fictional wrong answers on a general knowledge test. The results are interpreted within the context of already existing theories on conformity.

36 EFFECTS OF DANBURY'S ILLEGAL ALIEN POPULATION

Matthew Renfer (Dr. Patrick Ryan, Dept. of Writing)

In the past couple years, Danbury has been put on the map as a microcosm for America's illegal immigration crisis. Several raids have been conducted by Homeland Security's Immigration and Customs Enforcing (ICE) branch, along with forums, protests, and passed legislation. Some of Danbury's downtown businesses have shut down due to the scare directly shrinking Danbury's economy. This study will examine how the illegal alien population affects the city both positively and negatively. Furthermore, it will provide an inside look at the city-wide ongoing debate of what to do with the illegal population.

37 EXPLORING SOLUTIONS TO A HEAT DIFFUSION PROBLEM USING MAPLE VISUALIZATION

Troy Searcy (Dr. Lydia Novozhilova Novozhilova, Dept. of Mathematics)

Heat transport processes lie in the heart of various problems, global warming being just one example. Better understanding of these processes is crucial for solutions of these problems. Heat diffusion is one of the three ways heat is transferred in matter. We explore effects of physical parameters and boundary conditions on solution to a classic steady state 2D heat diffusion problem. Maple codes for both numerical solution and its visualization are presented. Convergence of the method used for numerical solution of the problem is also addressed.

38 DISEASE-RELATED STIGMA: THE EFFECT OF PERSONAL RESPONSIBILITY ON HELPING INTENTIONS

Stephanie Shorey (Dr. Norine Jalbert, Dept. of Psychology)

This study measured the effect of an afflicted individual's responsibility on others' helping intentions. One hundred and fifteen undergraduates read descriptions of a female with low or high responsibility for HIV or cancer. It was hypothesized that participants would be less likely to help the highly responsible female and less willing to become close if she was HIV positive. Consistent with Weiner's attribution model, participants were more directly helpful and willing to become close when her responsibility was low. Female participants were also more helpful than males. However, participants in the HIV condition were more willing to help the highly responsible student indirectly.

40 THE EFFECT OF PERCEPTION ON SELF-EFFICACY

Ann Vecchiariello and Jennifer Erichsen (Dr. Robin Flanagan, Dept. of Psychology)

The purpose of this study was to measure the perception of self-efficacy of twenty WCSU students diagnosed with a fictitious disorder manipulated to either raise or lower self-efficacy scores. Participants were randomly assigned to read either a positive or negative description of the diagnosis and then complete a questionnaire that measured self-efficacy. Although we did not find a significant difference between the groups, additional research in the field of perception on self-efficacy needs to be conducted for further analyses.

41 THE INFLUENCE OF CONTEXTUAL SUPPORT ON DEFINITION OF HOMOGRAPHS

Heather Walsh and Samantha Fennell (Dr. Robin Flanagan, Dept. of Psychology)

Homographs are ambiguous words that can be misleading without context. This study examined students' definitions of three homographs as a function of the amount of context that surrounded the homographs. Students were presented with the homographs 'fall', 'tear' and 'shed'. For each participant, one of the homographs was presented in no context, one with low context, and one with high context. We hypothesized that words shown in high context would be defined according to that context more frequently than words shown in low or no context. The results show that context level has no significant impact on the definition provided.

42 TESTING THE NATURALNESS OF THE GENUS OSERYA(PODOSTEMACEAE)

Amanda Weise (Dr. C. Thomas Philbrick, Dept. of Biological and Environmental Sciences)

Oserya is a plant genus of aquatic species in South America and Mexico. The naturalness of Oserya has been debated. 'Natural' implies all species share a common ancestor not shared by any other species (monophyly criterion). This study tested the hypothesis that Oserya is monophyletic using phylogenetic analyses of morphological characters. Parsimony analyses were conducted of five species of Oserya along with 28 species from 15 other genera. Results support rejection of the hypothesis: Oserya was not monophyletic. South American and Mexican species presently placed in Oserya grouped separately. These results support recognition of two genera, not one.

Abstracts

Seminar Presentations

listed in alphabetical order by first author

3 WAVELET BASED NON-PARAMETRIC REGRESSION MODEL FOR STOCK PRICE

Matt Buchta and Yubin Wang (Dr. Xiaodi Wang, Dept. of Mathematics)

The wavelet transform is an effective tool used for signal processing. Unlike the Fourier transform, a feature of this method allows us to analyze the time and frequency information of a signal concurrently. In this research we are going to create a new wavelet based time series method for forecasting stock market prices. We assume stock price is a function of various factors, such as previous day(s) stock price, Federal interest rate, dividend yield, etc. We apply the wavelet transform to each factor, breaking it up into approximation and detail components. We can then use multivariable linear regression on the combination of approximation and detail for each factor, allowing for more accurate next time period predictions than current financial methods allow.

5 THE ABILITY TO REMEMBER IRRELEVANT WORDS WHILE PERFORMING A HIGHLY INVOLVED TASK

Alexis Carrrera and Jeanne Mello (Dr. Robin Flanagan, Dept. of Psychology)

Many people get so involved in their task that they are unable to direct any attention to other things. The present study measured how much information a person in an involved task can recall and hypothesized that this group would recall fewer words than those in a less involved task. Participants had to either watch a movie clip or play a video game and recall words while performing their task. Results showed there was a significant difference in the amount of words recalled. The group playing a video game recalled fewer words than the less involved group watching a movie scene. This implies that people in a more involved task will often not recall what one is saying to them.

20 ENGINEERING CYTOCHROME C PEROXIDASE INTO A DEHALOPEROXIDASE: PRODUCTION, PURIFICATION AND ANALYSIS OF THE R48A CCP MUTANT

Chelsea Higgins (Dr. Alycen Nigro, Dept. of Chemistry)

Dehaloperoxidase (DHP) is a heme-containing enzyme capable of catalytic oxidative removal of halogens from organic compounds, an environmentally significant reaction given the toxicity of such compounds. Since the exact mechanism of DHP action is unsolved, this research sought to employ a protein model system created from a thoroughly characterized protein, Cytochrome c peroxidase (CCP), to elucidate some reactive properties of DHP. Using site-directed mutagenesis, an R48A CCP mutant with novel protein settings was created to potentially mimic DHP. Purification of the mutant followed by spectral characterization allowed for comparison with data available for wild type CCP and DHP.

22 GENDER DIFFERENCES IN PRESENTING SYMPTOMS, AND THE DIAGNOSIS AND TREATMENT FOR ACUTE CORONARY SYNDROME

Nancy Jacob (Dr. Laurel Halloran, Dept. of Nursing)

The presenting symptoms, the time required diagnosing, and the provided treatments of men and women newly diagnosed with Acute Coronary Syndrome (ACS) were examined to determine if significant differences occurred between the genders. There were no statistically significant differences found between the genders in the presenting symptoms, the time to diagnose and treatment, or the medical treatment of patients. There was a statistically significant difference between patients' reported presenting symptoms and the expected distribution of symptoms when gender was disregarded. The presenting symptom of atypical angina in the initial diagnosing of ACS may have a greater clinical significance than formerly thought.

39 IS THERE AN AFFORDABLE HEALTH INSURANCE PLAN AVAILABLE IN THE UNITED STATES FOR SMALL BUSINESS OWNERS?

Joanne Sierra, Novlet Fidler, Siliva Ertl-Islam and James Cristantiello (Dr. John Coleman, Dept. of Management)

Through education and research, affordable health insurance plans can be realized. Small business owners (< 50 employees) face the challenge of selecting the plan that is most appropriate for their business and employees and must choose the plan that makes the most business sense. This project addresses these fundamental issues.

43 MOUSE CELL BEHAVIOR ON ARTIFICIAL EXTRACELLULAR MATRICES

Benjamin Woodhouse Arjumond Khan (Dr. Frank Dye, Dept. of Biological and Environmental Sciences)

Whether in culture or in the body, cells are continuously interacting with the extracellular matrix (ECM). The ECM is an important component of body tissues that function outside of the body's cells. The ECM is composed of a complex mixture of proteins, proteoglycans and, in some cases, minerals (e.g., bone). Cells studied in vitro give a false impression as to how they look in vivo. In culture, cells assume a flat configuration. In our experiment, we studied cells using time-lapse videomicrography on two different nanofiber inserts. These inserts mimic an environment that is closer to what is seen in the body.

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