

Posters/Visual Displays

Presenter: Dave Borgerding

Project Advisor: Engin Sungur (Statistics)

Title: Civic Engagement for Statistics

Poster/Visual Display

Abstract:

The UMM Statistics Department began in the summer of 2002 to locate ways to collaborate on civic engagement projects that integrate existing coursework with rigorous teaching, research, and outreach. These efforts led to a Fall 2002 pilot project that was offered to University of Minnesota, Morris students enrolled in introductory statistics courses. This is the result of the civic engagement initiative headed by University of Minnesota President Bruininks. While the content in these courses has not significantly changed, the application of student learning has. Dr. Engin Sungur, Professor of Statistics, together with Ben Winchester, Coordinator of Data Analysis and Research at the Center for Small Towns, and David Borgerding, UMM statistics student, created the Civic Engagement Workbook for Statistics. This workbook is used as a supplement for the textbook in the courses. This workbook follows the textbook and provides problem sets for each chapter. The primary data source for this workbook is the 2000 US Census. The Census Bureau and the Minnesota Planning data repository web sites.

Presenter: Rachel Bowers

Project Advisor: Peter Wyckoff (Biology)

Title: Effect of Climate on *Quercus Macrocarpa* (Bur Oak) near the Prairie-Forest Border

Poster/Visual Display

Abstract:

Traditionally, dendrochronology has been used to deduce past climate history from tree-ring records. Our research took a different approach; given climate predictions for the future, what will happen to tree growth? Specimens of *Quercus macrocarpa* were studied at Glacial Lakes State Park, located along the prairie-forest border. These trees are under considerable stress, and should show climate signals in their growth rings. Core samples were collected and analyzed. A chronology was produced for each respective site, and compared to local Palmer Drought Severity Index records, and an r-correlation test performed. Results show that *Q. macrocarpa* is most negatively affected by drought during the summer months of June through September. Future summers in Minnesota are predicted to be hotter and drier in the summer. Because *Q. macrocarpa* is negatively affected by drought, we expect growth to decline in the future.

Presenters: Derek Brunsberg, Kim Buffington

Project Advisor: Paula O'Loughlin (Political Science)

Title: Economics of Political Opinion in Regard to Government Influences over Education

Poster/Visual Display

Abstract:

We are doing a q-sort on the involvement of government in education (i.e. K-12 and colleges and universities). Governor Pawlenty just laid out some areas where he could help beat the deficit and balance the budget. He is proposing to cut work-study and raise tuition by 15%. We wanted to see what our peers feel about the increases in education. We chose to do q-sorts for two reasons. First, because face-to-face involvement could influence their decision, we can just give them the q-sort and then they can place the statements they strongly agree with to statements that they strongly oppose. Secondly, because of the budget deficit that our state is in and we wanted to figure what people feel about education and what the government is doing to education funds.

Presenters: Lauren Buck, Cody Specketer, Diana Yund

Project Advisor: Paula O'Loughlin (Political Science)

Title: Party Identification: Does It Matter? A Case Study of the Minnesota 2002 Elections

Poster/Visual Display

Abstract:

Previous research in political science shows that while party identification has historically been one of the primary factors determining vote choice, its impact is declining. Our study, based on analysis of exit poll data collected in rural Minnesota from the 1998 and 2002 gubernatorial and Senate elections in Minnesota, offers two additions to the previous research. First, we find that while party identification among younger voters with the two major parties is declining, younger voters appear to show generation voters appear to remain true to the two party system. Lastly, analysis of our survey data indicates the weakness of a party identity centered campaign such as the 2002 Senate race between Wellstone/ Mondale and Coleman among all voters, old and young.

Presenter: Margaret Determan
Project Advisor: Wilbert Ahern (History)

Title: The Columbian Exchange: Was It an Even trade?
Poster/Visual Display

Abstract:

The history of epidemiology in colonial America raises three major questions: Did the indigenous people of the Americas have diseases before contact with Columbus? If so, were the diseases that passed from Columbus to the Natives and vice versa of different potency? If this is also so, what factors make it so? Factors such as location and lifestyle need to be taken into consideration in the spread of diseases. The presentation will look at the controversies surrounding what diseases each group had before contact and the possibilities that helped to spread the diseases between them.

Presenters: Libby Jensen, Kevin Ely, Steve Stolpman, Kristen Strissel
Project Advisor: Paula O'Loughlin (Political Science)

Title: Role of Government and United States Citizen Participation
Poster/Visual Display

Abstract:

In Paula O'Loughlin's American Political Culture course (Political Science 3264), our group has created a research project that will help us come to a greater understanding of American political culture. By focusing on Americans' ideal form of government as well as actual citizen participation, we hope to identify commonalities and discrepancies between American political ideology and civic engagement. Following the dictates of Q-methodology, we created two Q-sorts; one focused on the concept of the ideal role of government, while the other focused on actual participation of American citizens. Q-factor analysis suggests that individuals have a unique subjective worldview grounded in their own particular experiences. By administering these Q-sorts and conducting interviews with a wide variety of Americans, we gathered and interpreted data that addressed the broadest spectrum of political beliefs and attitudes possible. We then identified key commonalities and discrepancies between the beliefs and actions of Americans as citizens.

Presenters: Dan Wespetal, Joel Nelson
Project Advisor: Dian Lopez (Computer Science)

Title: Approximating a Parallel Task Schedule Using Longest Path
Oral Presentation

Abstract:

Our research focuses on an NP-hard parallel task-scheduling problem. The problem receives input in the form of a priority graph representation of a job where the objective is a task-to-processor allocation that minimizes the total computation time of the job. The sub-tasks can be executed in parallel on a network of identical computing entities. Communication and latency constraints are also imposed making the problem more difficult to solve. We have developed an approximation algorithm for this problem that runs in $O(mn)$ time, where n is the number of nodes (or tasks) in the job and m is the number of edges. The algorithm utilizes the fact that the longest path problem can be solved to optimality, in $O(m)$ steps, on graphs containing no directed cycles - which is consistent with priority graphs. We present results of the performance of the algorithm through extensive testing on random graphs.

Performers: Professor Gretchen Minton, Tim Finnegan, Nick Menzhuber, and Margaret Uttke

Title: A 25-30 Minute presentation of Shakespeare's *King Lear*
Theatrical performance

King Lear is one of the greatest Shakespearean tragedies of all time. Making the mistake of dividing his kingdom, Lear pulls everyone down into madness and chaos. He places the keys to the kingdom in the hands of two evil daughters, banishes those dearest to him, and eventually goes mad in the process. For this particular performance, however, we have taken a unique approach by getting rid of all the usual evil characters and focusing on the sad plight of a king gone mad. The script for this performance was created by the four presenters and paired down to the essential characters of Lear (played by Nick Menzhuber), Gloucester (played by Gretchen Minton), Kent/Caius (played by Tim Finnegan), and Cordelia/the Fool (played by Margaret Uttke).

Presenters: Monica Van Horn, Angela Richter
Project Advisor: Dian Lopez (Computer Science)

Title: A Random Graph Generator

Oral Presentation

Abstract:

Random graph generation is commonly used in studying solutions to approximation algorithms. If random graphs can be generated, they provide a way to test algorithms for hard problems that have no optimal solution. By using these graphs, simulations can be used to determine, on the average, how well an algorithm performs. It is also possible to generate 'bad' graphs that will be able to approach some worst-case solutions to algorithms. This paper will discuss the design and implementation of this random graph generator as well as its use on a scheduling problem for distributed/parallel systems. The design of our generator must take into consideration the number of nodes in the graph, the number of levels of the graph, the number of children for each node, and the height and width of each graph. Many truly random graphs turn out to look very similar to each other. That is why we also decided to generate graphs that were 'random' under certain constraints that would better test our algorithms. Lastly, we will discuss how the generator could be used to help others simulate their graph algorithm problems.

Presenter: Luke Walther

Project Advisor: James Wojtaszek (Spanish)

Title: "Woman Is Thy Superior": 70th Century "Hominism" and Ebonite Society in Madariaga's *The Sacred Giraffe* (1925)

Oral Presentation

Abstract:

With all the intellectual activity in our modern world one might assume that all socially significant literary works of the 20th century have been thoroughly analyzed. To my surprise, however, I stumbled across one that has been neglected while studying utopian literature more broadly. The Sacred Giraffe, by the Spaniard Salvador de Madariaga, is undeniably significant in its subject matter and creative way it is presented. Madariaga was a prolific writer, but this work of his has been over-looked. It is a bold work considering the tumultuous times in Europe and the colonial conflicts in Africa at that time. Published in England and Spain in 1925, it presents a distant future of life on Earth. In the 70th century the white race is extinct and women are the decision makers. The novel presents a biting, though humorous, satire of presumed gender and racial roles as well as human social and political parody. Critics seem to have not taken it seriously in 1925. They preferred to judge it as falling short in comparison to satirical predecessors such as Gulliver's Travels or Erewhon than accepting its important and unique social content. Consequently, The Sacred Giraffe has been pushed aside without an effort to appreciate its value. Presenting such a fantastical future society must have been ridiculous at the time, and, though written over 75 years ago, the effect is still profound today. We still grapple with similar issues. This contribution by Madariaga's humanist intellect should not be forgotten.

Presenter: Patrick Johnston

Project Advisor: Chris Lee (Political Science)

Title: Political Liberalization and Democratization in Sub-Saharan Africa, 1972-1995: A Cross-National Time Series Investigation

Poster/Visual Display

Abstract:

After the conclusion of the Cold War and the consequent large number of transitions to democracy, political scientists arrived at a general consensus that democratic governance is desirable. However, scholars widely debated—and continue to debate—*why* democratization happens in the developing world. Some maintain that conditions imposed by foreign donors such as Western governments and international financial institutions such as the World Bank and International Monetary Fund led to democratic change. Others argue that increased levels of civil protest and dissent led regimes to retract repressive policies and allow increased public participation. Still others maintain that domestic government institutions themselves, and the extent to which powers were separated between institutions, impacted the variance in levels of democracy. Using data from several well-known sources, we use ordinary least squares regression analysis to conduct a cross-national time series investigation of forty-six sub-Saharan African countries between 1972 and 1995 in an attempt to answer the following questions: Were the forces that impacted democratization political or economic?; Was the impetus to democratize largely domestic or international?; and, If domestic variables did in fact explain democratization, then did these variables lie in political institutions or in civil society? These questions form the core of the scholarly debate about why Africa democratized. Indeed, it is found that domestic institutions—and, namely, the extent to which presidential power was constrained—had the greatest impact on African democratization. In other words, countries in which presidential powers were limited, such as Botswana and Mauritius—tended to democratize and maintain higher levels of democracy than did countries in which presidents had few limits to their power, such as Zaire and Liberia.

Presenters: Rusty Kath, Andrew Grossbach, Danielle Stuard, Alicia Spencer

Project Advisor: Paula O'Loughlin (Political Science)

Title: Where Has the Jesse Voter Gone?

Poster/Visual Display

Abstract:

In the 1998 Minnesota Gubernatorial race, independent candidate Jesse Ventura shocked the world when he defeated prominent Republican and Democratic candidates and became the new governor of Minnesota. After a controversial four-year term, Ventura opted not to run for reelection. Our paper looks at the Jesse voter's future vote choices as they unfolded in the 2000 presidential election and the 2002 midterm elections. Analyzing exit poll data from both these elections, our paper suggests that the Jesse voter did not remain true to third party candidates in these later races. Our data also indicate that the so-called Jesse voters have not remained actively interested in politics. These findings have implications for both the politics of Minnesota as well as the efforts to develop third parties on the national level.

Presenter: Curtis Kunkel
Project Advisor: Peh Ng (Mathematics)

Title: Ramsey Numbers: Improving the Bounds of R(5,5)
Poster/Visual Display

Abstract:

Ramsey number $R(s,t)=n$ is the smallest integer n such that a graph of n vertices has either a complete subgraph (clique) of size s or its complement has a complete subgraph of size t . Currently, the exact value of $R(5,5)$ is unknown. However, the best known lower and upper bounds are $43 \leq R(5,5) \leq 49$. In this paper we will discuss a method that we use to construct a better lower bound, namely, by way of genetic programming (GP)/ genetic algorithm (GA). This method involves standard GA mutations and crossovers as recombination techniques as well as using algorithms and heuristics to find maximum clique of a graph. We implemented this method on a particular GA software called Sutherland. Results will include the “best” graphs found using this technique over multiple runs, statistical data as to the likelihood of increasing the current best-known lower bound of $R(5,5)$ if not strictly the lower bound.

Presenters: Amanda Laffen, Sara Mennen
Project Advisor: Jeff Ratliff-Crain (Psychology)

Title: Prosocial Helping Behavior: Impacts of Gratitude, Spirituality and Empathy
Poster/Visual Display

Abstract:

Prosocial behavior is voluntary behavior that is carried out to benefit another person. Likewise, all individuals have had personal experiences of helping and being helped by others. This study evaluated what factors enhance the likelihood that an individual will help a stranger when given the opportunity to do so. The factors investigated were individual differences pertaining to their relative disposition toward gratitude, spirituality and religiosity, mood, empathy, personal distress, and motivation for helping related to self-reported helping and subsequent behavioral actions toward helping others. A previous study utilizing undergraduate psychology participants, (McCullough, et al., 2002), tested factors related to helping using self-report questionnaires inquiring about these factors, emotions and well being, prosocial traits such as empathy, forgiveness, and willingness to helping others, spirituality, religiousness, and non-materialistic attitudes. The current study used college undergraduate men and women as subjects. This study used a total of four inventories/ questionnaires. After completion, each subject was presented with an opportunity to exhibit prosocial helping behavior by finding an envelope in an adjacent stairwell to the testing room, and having the option of doing a helpful response (e.g. mailing the letter) or another behavior such as ignoring it, discarding it, and the like.

Presenter: Peter Turpin
Project Advisor: Donna Chollett (Anthropology)

Title: Globalization, Emigration, and Border Control Issues in Mexico and Guatemala
Oral Presentation

Abstract:

This review analyzes from a critical, yet cultural, perspective the effects of globalization on Mexican and Guatemalan cultures, the causes of emigration from these countries, and current border control issues between them, as well as between Mexico and the United States. The nation-sized units of analysis provided by world systems theory are not sufficient for understanding the struggles of Mexican *campesinos* (peasants) against U.S. multinational corporations, nor are they sufficient for attempting to understand the effects that globalization has on coffee producers in Guatemala. Traditional push-pull theories of emigration are not to be discarded completely, but they must be supplemented with an understanding of the way in which social networks help to perpetuate the processes of emigration for which these older theories account. Finally, we must be aware that the political rhetoric of anti-immigration sentiment towards Latin Americans that blemishes our nation's history needs to be reexamined and reevaluated in accordance with the economic reality that stands contrary to it.

Presenter: Margaret Uttke
Project Advisor: Gretchen Minton (English)

Title: In the Shape of a 'Wooden O': Shakespeare's Playhouse
Oral Presentation

Abstract:

During the late sixteenth century and early seventeenth centuries, London playhouses flourished with the works of Shakespeare and his contemporaries. Public playhouses such as the Globe drew mixed audiences whereas private playhouses such as the Blackfriars catered to upper-class citizens. However, what exactly did these playhouses look like and what differences existed in the physical playing space of the public versus private playhouse? My presentation will build upon the research by scholars such as Andrew Gurr, author of *Playgoing in Shakespeare's London*. Rather than simply visually illustrating the physical construct of public and private playhouses, I also researched the plays of Shakespeare and his contemporaries, examining the use of the upper stage, balconies, and trapdoors alluded to in stage directions. My analysis of the stage directions will indicate the awareness playwrights had of the physical playing spaces and demonstrate how effectively playwrights employed stagecraft to engage the audience. I will then determine common patterns of stagecraft that I will apply to plays in which the performance location is in dispute. This examination of the playing space will reveal differences in the types of plays being written for public theatres like the Globe versus private theaters like the Blackfriars and why the playing space had such an important effect on the performances onstage.

Presenter: Samuel Redman
Project Advisor: Julie Pelletier (Anthropology)

Title: Issues in Native American Archaeology
Oral Presentation

Abstract:

This presentation will explore several of the major issues within Native American archaeology. With the passing of revolutionary legislation in 1990, entitled the Native American Graves Protection and Repatriation Act (NAGPRA), academic institutions were finally forced to perceive what is and is not sacred from the Native American's point of view. In the past, the United States government has failed to respect the human rights of Native Americans, and in this way NAGPRA represents progress toward undoing past injustices perpetrated by academic institutions across the country. However, some social scientists who wish to study the history of Native Americans consider the repatriation of crucial artifacts a major step backwards. Others believe that Native American tribes are committing injustices themselves by demanding the repatriation of artifacts simply because they have the power to rather than because they feel it necessary. By researching the academic documents, laws, and regulations, and by reading articles in the popular print media relating to this complex issue, I will propose ways by which Native American tribes and academic institutions can build better working relationships and find common goals to work toward in the future.

Presenter: Jeanna Schultz
Project Advisor: Peh Ng (Mathematics)

Title: Studying Pollution Trends in the Manuella-Stella Lake System: Discrete Dynamical Approach
Oral Presentation

Abstract:

It is more common and less complicated to study the pollution level of a self-enclosed system such as one lake or one restricted part of a body of water. However, when we have a system of lakes, it is not just important to know how pollutant content is changing in one lake, but also how pollutants in different lakes affect each other. In this project we built a discrete mathematical and dynamical model to study and analyze pollution levels in the Manuella-Stella lake system near Litchfield, MN. In particular, based on the data from the Minnesota Pollution Control Agency, we determined the best discrete dynamical system that describes the rate at which pollutants change in each of the lakes relative to the other. Then from our mathematical model, we were able to forecast the trends of pollution in this lake system in the near future. We plan to present the mathematical model and numerical results of this research work.

Presenters: Brianna Mann, Jennifer Heggestuen
Project Advisor: Eric Klingler (Psychology)

Title: The Effect of Previous Activity Types on Mental Ability Scores
Poster/Visual Display

Abstract:

The purpose of the research was to (1) explore the immediate effects of three types of stimuli—video games, mentally unstimulating tasks, and mentally stimulating tasks—on creativity and (2) examine whether frequent video game playing during the past year and during a person's childhood is negatively correlated with creativity scores. Participants (n = 96) were assigned to one of three conditions: video game, low stimulus or high stimulus. After completing assigned tasks, participants filled out the Torrance Test of Creative Thinking (TTCT) to assess fluency, originality, abstractness of titles, elaboration, resistance to premature closure and creative strengths. To test our second hypothesis, participants completed two questionnaires, the Heggestuen-Mann Activities Survey and the Heggestuen-Mann Childhood Activities Survey. There was a significant negative correlation (-.208, p = .043) of Heggestuen-Mann Activities Survey responses and TTCT Creativity Index scores, which assessed creative strengths, with daily time playing video games during the past year, providing support for our second hypothesis. Exploratory analysis revealed a significant negative correlation (-.217, p = .034) between Creativity Index scores and daily time watching television/movies during the past year. A MANOVA was used to analyze the effects of Conditions A, B, and C on TTCT scores. There was no overall multivariate effect of conditions on dependent measures taken together; however, the univariate effects of condition on Creativity Index scores was significant (F = 3.701, p = .029, respectively) though the results were not in the hypothesized direction.

Presenter: Jon Marchand
Project Advisor: Dennis Templeman (Anthropology)

Title: Fish On: An Anthropological Ethnography of Seasonal Nomadic Fishing in Minnesota
Poster/Visual Display

Abstract:

Sport fishing in Minnesota takes many forms, but its occurrence in the winter months is a source of curiosity and even bewilderment for many people who are unfamiliar with the tradition. As portrayed in films such as "Grumpy Old Men", the practice of sport fishing in the cold months is truly a cultural institution. A community of semi-nomadic individuals can be found living in small shelters, or shanties, across many lakes of Minnesota. The purpose of this ethnography is to provide a clear understanding of the motives, practices, and experiences of this culture through anthropological and sociological literature research as well as field observations. As a buttress to the resulting paper, a short documentary film will serve to provide a visual element to the study.

Presenter: Ben Maxwell

Project Advisor: Stephen Burks (Economics)

Title: Managerial Compensation and Firm Success in U.S. Trucking, 1977-87

Poster/Visual Display

Abstract:

The trucking industry in the U.S. prior to 1980 was regulated by the Interstate Commerce Commission (ICC), and this placed barriers to entry of firms into the market, while rates were set collectively, rather than competitively. In 1980, these regulations were abolished, and in the decade that followed, firms struggled adapt to the new and more intense competition; many firms failed and folded or were bought out. During this period the average real earnings of trucking company employee drivers fell, while, by contrast, those of corporate officers rose. This paper examines correlations between the earnings of employee drivers, and the earnings of corporate officers, controlling for the characteristics of individual firms. We ask: what factors predict the divergence between officers and drivers? What role is played by the firm's operational characteristics, and the firm's financial success? Similar studies are limited to publicly traded firms, but our data include information on private firms, and the version we use is unique for this time period because it contains critical human resources data, which others lack. Our analysis will provide descriptive statistics, graphical comparisons, and regression results relevant to this question.

Presenter: Adrienne Schwartz

Project Advisor: Gordon McIntosh (Physics)

Title: SiO Maser Velocity Distribution

Poster/Visual Display

Abstract:

Observations of the silicon monoxide (SiO) maser emission of Mira (Omicron Ceti) and R Cassiopeia have been carried out over the past two and a half years with the 37-m radio telescope at the MIT Haystack Radio Observatory in Westford Massachusetts. The duration of this monitoring program allows investigation of approximately three oscillations of the phase of these two variable red giant stars. The data are being used to examine variations in the velocity distribution of maser features in the $v=1$ and $v=2$ vibrational states of the lowest energy rotational transition ($J=1-0$). Theoretical predictions of M.D. Gray and E. M. L. Humphrey predict a relationship among the features in these transitions, suggesting that the $v=2$ transition will appear more red shifted than the $v=1$ transition at certain phases. The data will be used to determine the validity of this prediction and a comparison will be made of recent findings with previous results.

Presenter: Joel Nelson

Project Advisor: Mark Logan (Mathematics), Dian Lopez (Computer Science)

Title: A New Min-K-Cut Algorithm with Applications

Oral Presentation

Abstract:

Presented are new approximation algorithms for solving two different NP-hard graph problems. The first is the minimum k-cut problem. The new algorithm runs within the same time complexity as the current best-known algorithm and has equal or better performance given any input. The second new algorithm uses this new k-cut algorithm to approximate a solution to the parallel task scheduling problem. Both of these problems have important applications in the real world. We have developed an approximation algorithm for this problem that runs in $O(mn^3)$ time, where n is the number of nodes (or tasks) in the job and m is the number of edges. The algorithm utilizes another approximation algorithm that we developed for the minimum k-cut problem that runs in $O(kmn)$ time. We present results of the performance of the algorithms through extensive testing on random graphs. Also discussed are the algorithms that lead up to the new ones, along with their respective applications.

Presenter: Grant Olson

Project Advisor: Arne Kildegaard (Economics)

Title: Using Neural Networks to Predict Currency Crises

Oral Presentation

Abstract:

This presentation examines the ability of predicting currency crises using the "signals" approach used by Graciela Kaminsky, Saul Lizondo, and Carmen Reinhart in their paper, "Leading Indicators of Currency Crises." The presentation also looks at the possibility of improving upon the results of the researchers by using neural networks and analysis of the results in and out of sample.

Presenter: Jelena Kmezić
Project Advisor: Bart Finzel (Economics)

Title: Occupational Structure in Russia
Oral Presentation

Abstract:

Soviet block countries were the last to adopt privatization programs in central and Eastern Europe. Russia was one of those countries that went through the process of privatization; transition from state-planned to market-oriented economy. This paper provides evidence on privatization outcomes in the Russian labor market. The evidence is drawn from adult and household questionnaire conducted by Russia Longitudinal Monitoring Survey (RLMS). The ROMS is the first nationally representative household survey in the Russian federation designed to measure the effects of Russian reforms on the economic well-being of households and individuals. Data have been collected ten times since the beginning of privatization process in 1992. One of the expected outcomes of privatization is increased firm efficiency brought about via changes in the occupational make-up. In other works, occupational make-up should differ for firms that went through privatization from those that did not. To assess this conjecture Duncan indexes are calculated for occupations by three ownership types: government-, Russian-, and foreign-owned firms. The Duncan index (D) is a measure of dissimilarity since it indicates how similar or (dissimilar) the distributions of groups are across occupations. The measure allows a test of whether the occupational distribution varies significantly by the firm ownership type. Overall, limited evidence is found of significant difference among occupations across different ownership types. Further, this difference has been increasing in years after privatization process was completed.

Presenter: Jennifer Litzinger
Project Advisor: Gretchen Minton (English)

Title: Controlling Destiny: An Examination of Choruses in English Renaissance Drama
Oral Presentation

Abstract:

This presentation will focus on the control choruses and choral-like characters in Renaissance drama have in regards to predestination and free will. A close study of Shakespearean and non-Shakespearean dramatists will be demonstrated. The use of Hans Robert Jauss' work in the field of reader-response criticism will also be employed. Audience expectations and characters who adhere to or break away from their destinies will be explored in terms of how the "horizon of expectations" is set up by the author.

Presenters: Julia Theisen, John Hoemberg
Project Advisor: Eric Klinger (Psychology)

Title: Self-Esteem and Extraversion as Cues for Interpersonal Attraction
Poster/Visual Display

Abstract:

Research has shown that extraverted and introverted subjects are more attracted to extraverted people except on measures of reliable friendship. Also, research has shown that subjects with high or low self-esteem are attracted to persons with the same self-esteem level as their own. Hypotheses of (1) subjects will be more attracted to stimulus persons who share their respective self-esteem level, (2) subjects will be more attracted to stimulus persons who share their respective extraversion level, except on measures of reliable friendships, (3) regardless of a subject's extraversion level, low self-esteem subjects will be more attracted to extraverted stimulus persons with high self-esteem than to introverted stimulus persons with low self-esteem, and, high self-esteem subjects will be more attracted to extraverted stimulus persons with low self-esteem than to introverted stimulus persons with high self-esteem. Subjects (N=69) were tested to determine their levels of self-esteem and extraversion. Next, subjects rated 16 stimulus people on 10 different scales of attraction. Results showed that high self-esteem subjects were more attracted to high self-esteem stimulus persons, whereas low self-esteem subjects were *not* more attracted to low self-esteem stimulus persons. Extravert and introvert subjects were more attracted to the extravert stimulus persons across all scales, even those of reliable friendship. As predicted, low self-esteem subjects were more attracted to extraverted stimulus persons with high self-esteem than to introverted stimulus persons with low self-esteem, however, high self-esteem subjects were *not* more attracted to extraverted stimulus persons with low self-esteem than to introverted stimulus persons with high self-esteem.

Presenter: Nicholas Urick
Project Advisor: Jong Min Kim (Statistics)

Title: Randomized Response Used in Social Surveys
Poster/Visual Display

Abstract:

The use of a randomized response method within a social survey can help gain more accurate, truthful responses to sensitive survey questions. The randomized response technique will also guarantee privacy of confidential information via a randomizing device and thus reduce respondents' inclination to refuse to respond or to lie. It is an essential tool for anyone creating a survey with sensitive questions. The poster will describe the technique, its history, advantages and disadvantages.

2003 Undergraduate Research Symposium

Presenter: Lynn Weyer

Project Advisor: Nancy Carpenter (Chemistry)

Title: The Addition of Acetyl Chloride to Acylated Cyclopentadienyl Iron

Poster/Visual Display

Abstract:

The deprotonation of $(\text{CO})_2\text{Fe}(\text{Cp})\text{C}(\text{O})\text{CH}_3$, or acylated cyclopentadienyl iron dicarbonyl, with lithium diisopropylamide monotetrahydrofuran ($\text{LDA} \bullet \text{THF}$) is well studied, and subsequently, reacts reliably and efficiently with alkyl halides to form a bond at the enolate carbon. However, in studies carried out by UMM students, when an acyl halide was added to the deprotonated cyclopentadienyl iron dicarbonyl, the acyl group appeared to attach to the cyclopentadienyl ring. No definitive results were determined by the UMM students. The purpose of the research performed was to determine the products of the reaction and the ratio in which they form. The reactions performed in the experiment are sensitive to moisture, so all glassware used had to be dried in an oven overnight and the reactions were run under an atmosphere of nitrogen gas. Due to the instability of the final products of the reaction, the initial reagent was changed from acylated cyclopentadienyl iron dicarbonyl, to acylated cyclopentadienyl iron carbonyl triethyl phosphide. The new starting material is more stable than the acylated cyclopentadienyl iron dicarbonyl, making the final products easier to characterize.

Presenters: Brian Williams, Kate Ellis

Project Advisor: Paula O'Loughlin (Political Science)

Title: Examining American Cultural Nostalgia

Poster/Visual Display

Abstract:

We will examine perceptions of the state of America through individual Q-sort surveys and interviews. Participants will be asked to express their agreement or disagreement with a collection of forty statements. The results will be analyzed for patterns and grouped by similarity. Selective interviews will be conducted to further explore the feelings and opinions of the topic within these groups. The conclusions will address the question of whether people feel our nation, culture, and society is improving or declining in the latter half of the twentieth century.

2003 Undergraduate Research Symposium

Presenter: Tim Finnegan

Project Advisor: Gretchen Minton (English)

Title: The Rungs of Thomas Middleton's Socially Corrupt Ladder: Vindice and Bianca

Oral Presentation

Abstract:

I propose to share a paper entitled "The Rungs of Thomas Middleton's Socially Corrupt Ladder: Vindice and Bianca" which will explore the comparison between two characters in Thomas Middleton's plays Vindice in "The Revenger's Tragedy" and Bianca in "Women Beware Women") during the Renaissance period. I plan to explore corruption in each play and how each character succumbs to it; however, the main difference I want to consider is how gender plays a factor in how easily each are able to be corrupted. By using specific textual evidence from both plays, I intend to prove that Vindice (a man) is able to withstand the corruption of society around him, whereas Bianca (a woman) is unable to withstand the corruption imposed upon her because her gender renders her weak. The conclusion will show how Vindice is the stronger character and withstands corruption better because he is a male and women are almost always easily corrupted. Though both have become corrupt by the end of their respective plays, Vindice remains the stronger character.

Presenter: Jonathon Huebner

Project Advisor: Stephen Burks (Economics)

Title: Analysis of Trailer Fleet Options for Schneider Specialized Carriers-Glass Division

Oral Presentation

Abstract:

Schneider Specialized Carriers (SSC) is a division of Schneider National Carriers, the nation's largest "full truckload" trucking firm, with gross annual revenues of \$2.5 billion. SSC generates about \$100 million of that revenue handling cargo that requires specialized semi-trailers. The Glass division hauls very large panes of flat glass, held vertically, on A-frames, on several types of glass-only units. Large panes of flat glass are quite fragile, and are very dangerous for drivers and loaders to handle. SSC asked UMM to help it analyze the changes in costs and revenues that would result if the current trailers used to haul the largest sheets of glass were replaced with a new trailer design from Europe. The new design would sharply cut handling and injury costs in comparison to current trailers, but would also have higher up-front costs and could not be used for revenue-generating backhauls. The analysis addresses potential changes in ten cost factors and two revenue components, to produce an estimate of the change in total costs for a complete conversion.

Oral Presentations

Presenter: Erin Cary
Project Advisor: Debra Blake (English)

Title: Literary Citizens: Then and now
Oral Presentation

Abstract:
Speakeasy Magazine is a new national literary culture magazine founded last fall by The Loft Literary Center. Its mission is to explore the intersection between reading, writing and life, and to ask with each issue what it means to be a literary citizen. My internship with the magazine this spring, has been a constant firsthand encounter with questions like, "How do the issues of the day affect how people read and what writers write?" and "Do writers have a responsibility to treat social issues in their work?" *Speakeasy's* mission prompted me to compare these questions about the connection between a life and a "literary life" with the lifestyles of famous 20th century American writers, critics and journalists whose personal eccentricities and drives fascinate us. To what degree are the personas of writers such as Dorothy Parker, Hunter S. Thompson and Adrienne Rich created out of the relevance of their work, and to what degree does the zeitgeist with which their personal passions and weaknesses are symbiotic enter into their writing? Between art and life, who's imitating whom, and more importantly, what does each have to tell us?

Presenter: Amanda Conner
Project Advisor: Rebecca Morrison (WCROC)

Title: The Welfare of Gestating Sows in Deep-Litter Group Housing Systems
Oral Presentation

Abstract:
An experiment is being conducted to measure the welfare of gestating sows in deep-litter group housing systems compared to conventional stalls and pens. The welfare of gestating sows is generating considerable interest from all realms of the pork industry. Currently, the majority of gestating sows are housed in conventional stalls, which prohibit locomotory behaviors and social contact between sows. This confinement during gestation, whilst maximizing reproductive performance, may not be the most welfare friendly housing system for pregnant sows. Alternating sow housing systems are being developed to satisfy these deficiencies in social and exploratory behavior and locomotion, whilst maintaining high reproductive performance. In the current experiment the homeostasis approach is being used to measure welfare of sows in deep-litter, group housing systems compared to conventional confinement stalls and conventional group pens. Measures of welfare will include salivary cortisol concentrations, behavioral observations, wound scores and reproductive performance.

Presenters: Amanda Woodle, Michele Viere
Project Advisor: Paul Myers (Biology)

Title: Developmental Dynamics of Organogenesis in the Zebrafish, *Danio Rerio*
Poster/Visual Display

Abstract:
We have been using time-lapse video microscopy to analyze the behavior of cells in the embryonic and larval zebrafish during morphogenesis. We have focused on several specific patterns of activity: 1) Neural crest migration. Cells along the dorsal midline begin migrating ventrally to populate multiple tissues in the embryo. We have been tracking the activity of these cells both in normal development, and in development that has been perturbed by exposure to teratogenic levels of alcohol. 2) Cell death. One normal aspect of development is the programmed destruction of specific cells. We have identified a very reliable pattern of cell death in the zebrafish: it seems to be important in carving a 'notch' in the ventral fin, in the region where the urogenital ducts form. 3) Early embryonic motor activity and larval autonomic function. One peculiarity of the zebrafish is that there is no early inhibition of motor output. As motoneurons grow into the periphery, they trigger spontaneous twitching. Additionally, the larval gut shows peristaltic activity very early in development. These behaviors have a strongly rhythmic pattern of activity. The result of our work has been a body of photomicrographic images and video imagery of the organism as its cells actively transform the embryo. We will present these images on a web-based interactive computer display.

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The 2003 VRS Organizing Committee
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-James Cotter, Professor of Geology, UMM, and 2000 recipient of the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring

Opening Speakers

Samuel Schuman, Chancellor

John "Fritz" Schwaller, Vice-Chancellor for Academic Affairs &
Dean

Jess Larson, Assistant Professor of Studio Art

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