

3-23-1999

Student Research Colloquium '99

St. Cloud State University

Follow this and additional works at: https://repository.stcloudstate.edu/src_proceedings

Recommended Citation

St. Cloud State University, "Student Research Colloquium '99" (1999). *Student Research Colloquium Proceedings*. 18.
https://repository.stcloudstate.edu/src_proceedings/18

This Conference Proceeding is brought to you for free and open access by theRepository at St. Cloud State. It has been accepted for inclusion in Student Research Colloquium Proceedings by an authorized administrator of theRepository at St. Cloud State. For more information, please contact rswexelbaum@stcloudstate.edu.

Student Research Colloquium '99



March 23, 1999
Atwood Center, Upper Level
10:30 am - 3:30 pm

ST. CLOUD STATE
UNIVERSITY
A tradition of excellence and opportunity

TABLE OF CONTENTS

Table of Contents	1
Organizers and Sponsors	2
Schedule of Events	3
Program	4
Abstracts	10
Author Index	42
Faculty Sponsor Index	51

ORGANIZERS AND SPONSORS

St. Cloud State University Student Research Colloquium '99

The St. Cloud State University Student Research Colloquium '99 was organized by: the Student Research Colloquium Planning Committee, the Applied Research Center for the College of Science and Engineering, and the Office of Sponsored Programs.

Student Research Colloquium '99 Planning Committee:

David Boyer	Dennis Nunes
Richard Brundage	Jill Peterson
Shelley Brundage	Jeanette Pipp
Sharon Cogdill	Zoa Rockenstein
Monica Devers	Mark Rodel
Lois Head	Roseanna Ross
Mike Jeannot	Elizabeth Scheel
Susan Jensen-Cekalla	Gretchen Starks-Martin
Jennifer Kolden	Leslie Valdes
Denise McGuire	Karen Wenz
Scott Miller	Peiyi Zhao
Pamm Minden	Jiping Zuo
Donald Neu	
James Nicholson	

With Support from the SCSU Alumni Foundation

Organizing/Format: Dr. Richard Brundage, Professor of Physics & Director, COSE ARC
Editing: Richard Brundage, Jennifer Kolden, Paula Nix
Printing: SCSU Printing Services

SCHEDULE OF EVENTS

<u>Time</u>	<u>Event</u>	<u>Place</u>
Performance & Oral Presentations		
10:30 to 11:00	Registration & Set up	Atwood Center Upper Level
11:00 to 12:30	Sessions: A B C D E F G	Atwood Center Rooms: Lewis & Clark Glacier South Glacier North Voyageurs South Ballroom A Ballroom B Ballroom C
Poster Presentations		
12:30 to 2:00	Registration & Set up	Atwood Center Ballroom
2:00 to 3:30	Poster Session	Atwood Center Ballroom

Program

Session	Time	Authors	Title
Location: Lewis & Clark			
A1	11:00	Bikira Cotton	Breaking the Ethnocentrism of Western Medicine: Medical Practices from South Africa
A2	11:20	Eugene S. Launier	Clear the Way for the Rage: Representation of Signification in Rap and the Cultural Taboo of Racial Crossover
A3	11:40	Angela Fox	Explorations
A4	12:00	Christine Grossman	Mrs. Robinson's Colonial Empire of One
Location: Glacier South			
B1	11:00	Marjorie Mair-Hansen	The Impact of Faith-Community Affiliations on Older Women's Lives
B2	11:20	Sarah Lynn Anderson	Re-Exploring Cultivated Life
B3	11:40	Kristy Kuebelbeck, Jean Eberlein, Lezlee Johnson	Feeding the Gifted Mind: Gifted Women Advocating for One Another
B4	12:00	Christine Petagno	Disney Women: Who to Love, Who to Hate
Location: Glacier North			
C1	11:00	Kevin Bechtold, Jeremy Anderson	Synthesis and Characterization of Europium Doped Glass by Sol-Gel Method
C2	11:20	Daniel Hooper	Near Ultraviolet Spectroscopy of Interstellar Oxygen
C3	11:40	April Homich, Jean Zilka, Sarah Reed	Correlations Between CO and HCN Production Rates and Absolute Visual Magnitudes of Comet Hale-Bopp
C4	12:00	Troy Pierson	Durability of Elastomeric Polyurethane

Session	Time	Authors	Title
			Location: Voyageurs South
D1	11:00	Nicholas Njora	Rape & Violence Against Women
D2	11:20	Jackie Halvorson, Kay Kingston, Dana Gibbons Matt Parent	The Socio-Cultural Context of Blame: An Examination of Peer Evaluations of Date Rape Victims
D2	11:20	Melissa Lyon, Sara Schanon, Pete Saksvig, Ann Malling	The Social Control of Women: Advising Victims of Date Rape to Alter Their Lives to Avoid Future Assaults
D2	11:20	Amy Kodet, Greg Roach, Nita Moen, Pam Charbonneau	Lending a Hand in Crisis: Positive Support Offered to Victims of Date Rape by Peers
D2	11:20	Danielle Williquett, Melissa Jelinek, Jeremiah McQuay, Jamiee Massie	What It Takes to Be Labeled 'Rape': Peer Definitions of Women's Experiences With Date Rape
D2	11:20	Ryan Hostetler, Ashley Johnston, Christine Curtis, Karin Roth	How Race "Colors" the Social Responses to Date Rape Victims
D2	11:20	Eric Johnson, Betsy Smith, Michelle Schneider	Does Gender Matter When Supporting Rape Victims?
D2	11:20	Melissa Maki, Chris Schwinghammer, Deb Mayer, Deb Ingmire	The Cost of Caring: The Impact of Supporting Women Who Experience Rape

Session	Time	Authors	Title
Location: Ballroom A			
E1	11:00	Greg Reineccius, Nathan Dusheck	Concurrent Product and Process Design
E2	11:20	Mike Hanson, Kristin Lindholm, Aaron Weyer	Single Line Multi-User Telephone System
E3	11:40	Jason Clayton	PCR Analysis of the Microsatellite Marker Cervid-1 in Minnesota White-Tailed Deer
E4	12:00	Renee Samuelson	Determination of Rat Transamidinase Gene Structure Using PCRq

Session	F	Location: Ballroom B
F1	11:00	Christian Banks, Rashid Nadeem, Pao Xiong
F2	11:20	Lloyd Dalton, Sultan Faiz, Rabindra Sainju
F3	11:40	Robin Exsted
F4	12:00	Tami Lou McDowell

Session	G	Location: Ballroom C
Paper	Time	Authors Title
G1	11:00	Mark Rodel, Chris Schriever
G2	11:20	Kai-Sven Beckert
G3	11:40	Jennifer Eersland- Beckert
G4	12:00	Virginia Ferlet, Lily Arifin, Anne Lawrence

Session H**Location: Atwood Ballroom**

All Papers from 2:00 to 3:30 pm

	Authors	Title
H1	Andrea Tollison	Optical Properties of Samarium Doped Fluorophosphate Glass
H2	Jeff Henry, Jeremiah Neubert	The Split Ram Process
H3	Michael J. Dvorak	The Traveling Salesman Delivers the Mail at SCSU
H4	Michael Rasmussen	Design and function of Computer Enhanced Monark Exercise Bike
H5	Jason Asselin	Rapakivi Granites of St. Cloud
H6	Mike Hanson, Kristin Lindholm, Aaron Weyer	Single Line Multi-User Telephone System
H7	Christian Banks, Rashid, Nadeem, Pao Xiong	Emergency Vehicle Advanced Warning System
H8	Lloyd Dalton, Sultan Faiz, Rabindra Sainju	A High Resolution Pin - Matrix Computer Display for the Blind and Visually Impaired
H9	Jean Zilka, Sarah Reed, Brian Henning, April Homich, Mike Spinar, Frank Deglman	A CCD Imaging Archive of Comet Giacobini-Zinner
H10	Frank Deglman	Galaxy Morphology
H11	Sarah Welken	Date Rape
H12	Jared Johnson, Chris Piontek, Gordon Bekkala	Inoculant Injection Improvement for Casting Process
H13	Shanalea Kraker, Jenny Spears	Women in History
H14	Jason Hammerback, Shawn Omann	Design Sequence of Automated Machinery
H15	Joel Eggert, Chris DeGraw	CO2-TEA Laser Workstation
H16	Tonya Faundeen	Peer Support and Safer Sex Decisions of Lesbian-Gay-Bisexual Youth
H17	Jason Mrozek, Curt Nordgaard, Nikki Moore	The Effect of a Diversity Workshop on Multi-Cultural Attitudes Towards SCSU
H18	Nikki Moore	Illustrating the Developmental Stages of Life: A Personal Perspective on Physical, Cognitive, and Psychosocial Development

Session H**Location: Atwood Ballroom**

All Papers from 2:00 to 3:30 pm

	Authors	Title
H19	Lori Korte, Brenda Degner, Kelly Cornell, Jason Mrozek	Influences of Gender and Power on Perceptions of Mixed-Sex Dyads
H20	Mollee Ludtke, Paige Baker	Lactate Comparisons in Distance Runners: Training Versus Racing
H21	Keli Holmes	Comparison of Peak Kicking Force Between Position and Leg of Women Soccer Players
H22	Eric Fenstad, Scott McMillan	On and Off Ice Performance Testing of NCAA Division I Women Ice Hockey Players
H23	Kristi Chupurdia	Physiological Comparison of Freestyle and Classic Nordic Skiing in College Women
H24	Wayne Board	Daily Volume Change in Below Knee Amputees
H25	Jennette Pipp	Using Linear Regression to Predict Maximum Temperatures from 1000-850 mb Thickness
H26	Christopher Horsmann, Derek Schilling, Bart Johnson, Chad Macheel, Jason Strand, Daniel Jaszczak, Matthew Clarke, Reuben Heine, John Kedrowski, Jeffery Gertken	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
H27	Brian Millard	Field Study of Reformatory Granite, College Quarries
H28	Kendra Sprague	A Hydrological Study of Otter Creek
H29	Scott McMillan	Effect on Jump Height Determination After Filtering Force Platform Data
H30	Todd Griffrow	A Comparative Investigation of Hydrogeological Functions of Restored Wetlands
H31	Nicola Blake-Bradley	Investigative Study of Vegetative Succession of Restored Wetlands
H32	Reuben Heine	Susceptibility of Ground Water to Water-Borne Contamination
H33	Joel Artmann, Aaron Pugh, Eric Mjølhus	Home Automation System

Session H**Location: Atwood Ballroom**

All Papers from 2:00 to 3:30 pm

	Authors	Title
H34	Lance Iverson, Shaarma Mabin, Dustin Steffenson	DSP - Based Servo Motor Controller
H35	Erina Tateyama, Brett Chesness, Naeko Naganuma	Cultural Differences Between Japan and the U.S.: The ESL Japanese Cultural Experience
H36	Jenelle S. Peters	A Comparison of Two Q-Sort Attachment Measures in a Group of Family Literacy Parents & Their Children
H37	Heidi Henning, Erika Novak, Ruth Lovander, Sonee Bergquist, Dolly Sinclair, Sarah Johnson	Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages
H38	Jeff Evans	Clinician Judgements of Stuttered and Nonstuttered Intervals
H39	Kari Rudek	Reduction of Chronic Compulsive Clothes Changing
H40	Amy Johnson	College Women's Precautionary Behavior for Acquaintance Rape
H41	Ryan Brisk	Gender in Resume Screening
H42	Aaron Nelson	The Effects of Ingesting Carbohydrate Gel And Liquid Glucose on Blood Glucose and Oxidation Responses During Rest
H43	Kevin Bechtold, Jeremy Anderson	Synthesis and Characterization of Europium Doped Glass by Sol-Gel Method

Abstracts

A1 Breaking the Ethnocentrism of Western Medicine: Medical Practices from South Africa

Bikira Cotton

Faculty Sponsor: Lalita Subrahmanyan Department: ED

In our quest of understanding the beginnings and endings in our world, we have developed scientific methods and theories to assist us in finding the answers. Unfortunately our practices have reflected a narrow viewpoint of thought. Usually, and undoubtedly, a European viewpoint. Over the centuries various cultures have contributed to the field of science and technology but Western scientists still are unable to understand methods, logic, and theory of those people. This understanding, however, seems to be growing. Specifically, in the field of medicine where there has been some impact/influence of non-white cultural techniques. In South Africa, as in other eastern countries, there is still the practice of "Medicine Men/Women" as well as "modern doctors." The contrast and/or combination of these two practices would be very interesting to investigate. In this study, I will compare and contrast the perceptions about medical practice of South African medical practitioners in traditional and Western medicine. I will interview "medicine men/women," nurses, and doctors in South Africa about their philosophy and practice of medicine. Through this investigation, I will attempt to assess, analyze, and compare Western and non-Western medical practices in South Africa and connections between the two categories, if any. This study will prove significant in illustrating where one aspect of medicine has come from and where it going.

A2 Clear the Way for the Rage: Representation of Signification in Rap and the Cultural Taboo of Racial Crossover

Eugene S. Launier

Faculty Sponsor: Sidney Parham Department: ENGL

In his book The Signifying Monkey, Henry Louis Gates, Jr. articulates a theory for reading and interpreting African-American literature. This theory is employed to read literary texts of the popular culture: a television episode of *All in the Family* and Public Enemy's rap album *Apocalypse '91 . . . The Enemy Strikes Black*. These texts should be regarded as modern literature because they convey an informed narrative between and among large groups of "readers." Informed by Gates' theory of signification, a critical reading of these texts illuminates a distinct difference between the white American and black American readership, with regard to how they read, understand and make use of these texts. These distinctly different understandings of the same texts reflect a conscious effort by the power structure, through the public media and popular culture, to instill and control an increasingly unbridgeable division between white and

black Americans. In short, Gates' theory illuminates that de-racializing texts, once filtered and presented through the popular culture, actually serve to further entrench racism into our collective consciousness.

A3 Explorations

Angela Fox

Faculty Sponsor: Scott Miller

Department: MUS

Abstract not available

A4 Mrs. Robinson's Colonial Empire of One

Christine Grossman

Faculty Sponsor: Sidney Parham

Department: ENGL

The relationship between Benjamin and Mrs. Robinson in *The Graduate* can be seen as colonial. In The Location of Culture, Homi Bhabha describes the colonized attempting to replicate the governing culture, to erase "a difference that is almost nothing but not quite" (91) by learning the governing culture. Through their affair, Mrs. Robinson both provides an avenue for Benjamin to learn a new dimension of the Establishment culture, and a means by which he can think he is subverting it. The cycle of domination and subordination is so intrinsic to American culture that it plays itself out right in the suburbs, among the lawns and the swimming pools.

B1 The Impact of Faith-Community Affiliations on Older Women's Lives

Marjorie Mair-Hansen

Faculty Sponsor: Phyllis Greenberg

Department: CCS

The objective of this study was to explore the relationship in rural localities between older women's self-perceived wellness and the support they received from their faith-communities. Studies showed increased perceived wellness when persons have faith in a higher power. Increased perceived wellness has also been associated with community support. However, little research appears to have been done combining faith and community (i.e., rural congregations). "Self-perceived wellness" was defined as each woman's own view of her health; "health" was identified holistically--physical, psychological, spiritual, and social. Actual health vs. illness was not the focus but instead the woman's own view of her health-- one affecting her ability to do things for herself, to prolong independent living and maintain greater self-worth. Research has also shown that older people generally prefer their own homes to retirement communities/nursing homes. As RN and pastor, I have observed that older people are more easily disoriented and depressed if separated from familiar people and places. The sense of wellness was higher for them when near persons and locales reinforcing cherished memories. After a review of past research, individual, tape recorded, in-

depth interviews were begun. The pastor and 6 to 8 women, 65 and older, were selected from volunteer members of two "yoked" rural Central Minnesota Protestant churches. The interview data will be analyzed for trends and significance, as this is a work in progress. Research implications include changes in church programming, social service focus, and nursing home usage. If self-perceived wellness improves with congregational support, churches may be resources for helping women to remain longer in their homes at reduced cost to themselves and society, and for helping women to also continue contributing to the community while enjoying a higher quality of life.

B2 Re-Exploring Cultivated Life

Sarah Lynn Anderson

Faculty Sponsor: Theodore Sherarts

Department: ART

Abstract not available

B3 Feeding the Gifted Mind: Gifted Women Advocating for One Another

Kristy Kuebelbeck, Jean Eberlein, Lezlee Johnson

Faculty Sponsor: Zoa Rockenstein

Department: PSYC

The authors' goal is to encourage gifted teenage women to aspire to meet the intellectual challenges of their giftedness. We hope to give our sample of high school gifted women the realization that the term "giftedness" includes women of exceptional academic ability, as well as those who possess creative and specific talent. We also want them to be aware of the barriers to achievement for gifted women, emphasizing both the "culture of romance" and the adolescent plunge in self-esteem. We administered a survey to 40 Apollo High School National Honors Society women. We found several problem areas. The areas we will address in this presentation include: (1) denial of giftedness (2) the true definition of psychologically well-adjusted (3) lack of gender pay equity (4) barriers to career advancement for women. Based on responses we received from our survey, subjects demonstrated a lack of knowledge and understanding of these important issues. Gifted women need to be nurtured, directed, and encouraged to reach their potential. It is essential that gifted women receive inspiration from role models and mentors. People need to be aware of the untapped potential of gifted women.

B4 Disney Women: Who to Love, Who to Hate

Christine Petagno

Faculty Sponsor: Zoa Rockenstein

Department: PSYC

The portrayal of women in Disney animated films may influence the way viewers perceive women in our society. This study examined the characteristics of "good" and "evil" women in 14 of these films. Many common traits were found. "Good" women

were often young, unrealistically thin princesses whose only career goal was to fall in love. They achieved this goal by the end of the film, often solely by being beautiful. Most of these women were motherless; if they had a mother the relationship was not significant. They were usually shown taking care of household chores and caring for others and doing domestic work. Although more recent films show an acknowledgement of female intelligence, this trait was seen as a rare exception to the standard Disney rule. "Evil" women were often middle-aged queens who cared only about themselves. They had power and sought more power. They were often unmarried and/or dominant over an unintelligent, "wimpy" male. They often took advantage of the "good" woman's trusting nature. These women were attacked or destroyed (usually by the "prince") by the end of the film. The influence of these films should not be underestimated. The implications of these portrayals and how they may affect women will be discussed.

**C1, Synthesis and Characterization of Europium Doped Glass by
H43 Sol-Gel Method**

Kevin Bechtold, Jeremy Anderson

Faculty Sponsor: Donald Neu

Department: CHEM

The synthesis of new materials for use in lasers and fiber-optic communication is of great economic and scientific interest. Much progress has been made in methods of synthesis, product quality, and characterization of optical qualities of new materials. The sol-gel method will be discussed as a means of preparing high quality materials while correcting some of the problems encountered with glasses prepared by other methods. A discussion of the theory describing the optical properties of europium doped glass will be included. Fluorescence line narrowing spectroscopy will also be discussed, as a possible means of characterizing the dispersion and bonding environment of the europium atoms.

C2 Near Ultraviolet Spectroscopy of Interstellar Oxygen

Daniel Hooper

Faculty Sponsor: John Harlander

Department: PAES

Spectroscopic observations of interstellar gas can yield information on the temperature, dynamics and chemical composition of such regions. Singly ionized oxygen (OII), which exists in high temperature interstellar gas, is known to emit light of wavelength 3727 angstroms (10^{-10} meters). Field-widened, Spatial Heterodyne Spectrometers (SHS) excel at measuring the emission of faint, diffuse sources due to their very high spectral resolution and large field of view. Such an instrument has been constructed for observations of interstellar ionized oxygen. SHS instruments are similar in design to Michelson interferometers but use diffraction gratings rather than mirrors. This greatly enhances the spectral resolution of the instrument. Field-widening prisms have been included in the design of this instrument. The prisms enlarge the field of view which increases the light gathering power of the instrument by a factor of approximately 25. Straight line fringe patterns produced by the instrument are recorded using a Charge Coupled Device (CCD) detector which yields spectra when analyzed using Fourier transform techniques. Most of the effort in this project to date has gone into the design

and alignment of the instrument. Observations of interstellar oxygen have recently begun. Long term plans for this instrument include a full sky map of OII distributions in interstellar gas.

C3 Correlations Between CO and HCN Production Rates and Absolute Visual Magnitudes of Comet Hale-Bopp

April Homich, Jean Zilka, Sarah Reed

Faculty Sponsor: Maria Womack

Department: PAES

The analysis of measured production rates of CO and HCN in Comet Hale-Bopp over a large range of heliocentric distances has opened the possibility of establishing a correlation between gas production and heliocentric magnitude. Although the visual magnitude of Hale-Bopp was predominantly due to sunlight reflected from dust in the coma, the cometary activity was driven by sublimation of gases. Thus, such a relationship is important to understanding the generation of comae. This is particularly the case at large heliocentric distances when CO is hypothesized to be the dominant sublimation driver. We computed production rates from millimeter-wavelength spectra of CO and HCN in Hale-Bopp, and calculated absolute visual magnitudes using visual magnitudes from the International Comet Quarterly (ICQ) referenced by Green (1998). These values were compared to search for correlations between gas productivity and visual magnitude.

C4 Durability of Elastomeric Polyurethane

Troy Pierson

Faculty Sponsor: Steven Covey

Department: MfgE

Many amputees struggle in a world dominated by those without significant physical handicaps. However a significant number of amputees continue to lead very active lifestyles with the assistance of advanced engineering materials and structures. In this work, a locally manufactured biomedical composite is being evaluated for durability. The material is polyurethane based and serves as the interface between the amputee's stump and the prosthetic device. A new test method is being developed to assess the durability of this class of materials under the complex loading environment present in the prosthetic device. As part of the new test method, a fixture was designed to employ standard single axis testing equipment to produce a multiple axis loading condition. The test fixture utilizes a ram and a recess to deform the material repeatedly (to a predefined failure) to determine its relative life. After baseline durability is determined with current product, next generation materials are evaluated to assure improved durability. Further, comparison with competitor's product is being made. Results indicate that two primary factors significantly affect durability of a given material. These include the relative loading level, and the coefficient of friction of the exposed surfaces of the material. Other factors shown to affect durability include the elastomeric (or "flow-ability") property of the material, and the surface treatments performed on the material.

D1 Rape & Violence Against Women

Nicholas Njora

Faculty Sponsor: Gerianne Klug

Department: WS

I developed a web site entitled "Rape and Violence against Women". I linked up to 4 different sites. You will find audio clips of rape victims, a Java program scrolls up statistics on rape, as well as quotes from well-known women. The site also states myths and facts on rape. It also defines the different kinds of rape, and how to go about assisting the victim, as well as getting help. In the U.S., a rape is reported every six minutes, National statistics show that one out of every four women will be the victim of sexual assault in her lifetime. However only 3% of all rapists are ever convicted of their crime. Of the 10% of rapes that are reported to law enforcement, arrests are made in only 51% of the cases reported. One in six college students reported being a victim of rape or attempted rape during the preceding year. Twenty-one sexual assaults were reported to the St. Cloud State Women's Center between July 1, 1997 and June 30, 1998. Women across America are asking for a level playing field, the right to safe, well-lit streets. The right to better police services, better laws, legal representation and social services. Women are asking for their basic needs. This is their right and we as a community owe it to them.

D2 The Socio-Cultural Context of Blame: An Examination of Peer Evaluations of Date Rape Victims

Jackie Halvorson, Kay Kingston, Dana Gibbons, Matt Parent

Faculty Sponsor: Elizabeth Scheel

Department: SOC/ANT

Blaming the victim has been measured repeatedly in the literature and it is clearly documented that women who are raped have been blamed for their dress, sexual behavior, and character. Recent findings, however, suggest that students today are less blaming than in the past and this has been attributed to increased educational programs on high school and college campuses and increased media attention. However, these studies all rely on surveys, while repeatedly tested for validity and reliability, lack the ability to measure more subtle forms of blame and fail to describe the context in which blame is communicated to the victim. Thus, this paper sought to understand the process of blaming by interviewing participants after they listen to an audio vignette of a woman confiding a date rape experience. Preliminary results clearly demonstrate that students do know to reject the more blatant myths about women's dress, etc. and they have learned to say "it is not her fault", but repeatedly, respondents followed this statement with "but" and a litany of things that the victim did or failed to do in order to avoid being raped. Implications for educational programs are discussed.

D2 The Social Control of Women: Advising Victims of Date Rape to Alter Their Lives to Avoid Future Assaults

Melissa Lyon, Sara Schanon, Pete Saksvig, Ann Malling

Faculty Sponsor: Elizabeth Scheel

Department: SOC/ANT

Two hundred undergraduate students were asked to evaluate an audio scenario of a woman confiding a date rape experience. Students were asked to respond in a semi-structured interview format that asked them to consider what they would and would not say to the victim in the scenario. This paper focuses on the advice that peers give to women about how they should behave in the future to avoid similar experiences. Preliminary results suggest that participants advise a number of restrictive behaviors from not dating to restricting times and places that women travel. Advice from peers is examined using the feminist analysis of public/private space and the social control of women and the implications for women are discussed.

D2 Lending a Hand in Crisis: Positive Support Offered to Victims of Date Rape by Peers

Amy Kodet, Greg Roach, Nita Moen, Pam Charbonneau

Faculty Sponsor: Elizabeth Scheel

Department: SOC/ANT

Traditionally, researchers have focused on institutional responses to rape victims, overlooking the influences of peers on the survivor's reactions to a rape and the decision and healing processes. Furthermore, studies tend to focus on survey responses on attitudes towards victims ignoring the contextual process of supporting a rape survivor. This paper seeks to measure the positive support offered to a known victim of date rape. One hundred women in California and 100 men and women in Minnesota between the ages of 18 and 24 participated in a semi-structured interview which asked them to respond to an audio vignette of a woman describing her rape experience. Results from this study indicate that women offer a wide range of positive support to the survivor, from verbal and physical comfort to tacking actions on behalf of the survivor. Unfortunately, this support is often tempered with blame and recrimination. While most clearly rejected the more blatant rape myths, 99% made at least one blaming statements in their response to the survivor. Referrals to therapists, police, and others are also discussed. Implications for reporting victimization and educational programs targeted at women as supporters of rape survivors are discussed.

D2 What It Takes to Be Labeled 'Rape': Peer Definitions of Women's Experiences With Date Rape

Danielle Williquett, Melissa Jelinek, Jeremiah McQuay, Jamiee Massie

Faculty Sponsor: Elizabeth Scheel

Department: SOC/ANT

Recent debates over date rape have centered on the issue of what exactly qualifies and is included in the definition of rape. Since the 1970's, feminists have worked to expand the definition beyond rapes that are perpetrated by strangers with excessive amounts of

force to be more inclusive of the more common acquaintance and date rape experiences. Recently, however, there has been growing criticism that suggests that feminists have broadened the definition too far. Primarily the issue focuses on the issue of consent and whether or not the victim's experience of the event is enough to label the act "rape." This paper seeks to explore this debate by measuring how peers define rape, first in the abstract, and then applied to a real situation. Two hundred undergraduate participants listened to an audio vignette of a woman describing a situation that meets the legal requirements for rape and were asked to evaluate the scenario and determine whether or not it was rape. Preliminary results indicate that most respondents use a woman's consent and the man's force to define rape in the abstract, but when evaluating the vignette, held the victim to much more restrictive standards. Implications for law enforcement are mentioned and how this research contributes to this debate is discussed.

D2 How Race "Colors" the Social Responses to Date Rape Victims

Ryan Hostetler, Ashley Johnston, Christine Curtis, Karin Roth
Faculty Sponsor: Elizabeth Scheel Department: SOC/ANT

As women have started to speak out about their experiences with rape, researchers attempt to understand the socio-cultural context of rape by measuring public attitudes towards rape survivors. Keeping with this tradition, this paper examines social responses to Caucasian and African American victims of date rape and explores how support and victim blame are communicated to the rape victim. In addition, it explores how definitions of rape and various types of support and blame vary according to the ethnicity of the victim. One hundred college women from California and 100 college men and women from Minnesota between the ages of 18 and 24 participated in a semi-structured interview that asked them to respond to an audio vignette of a woman describing her rape experience. Results from the original sample in California indicate that college women and men still tend to place an abundance of responsibility for the rape on the victim. Furthermore, those who listened to an African-American victim were much more hesitant to label the incident "rape," had higher requirements of proof that a rape had indeed occurred, and blamed the victim more than those who listened to a Caucasian victim. This paper also explores gender and geographical variations in the data. Implications for the criminal justice system and education efforts directed at peer support systems are discussed.

D2 Does Gender Matter When Supporting Rape Victims?

Eric Johnson, Betsy Smith, Michelle Schneider
Faculty Sponsor: Elizabeth Scheel Department: SOC/ ANTH

Previous research indicates that most victims confide first in a friend, suggesting that such peer responses would be influential aspect of the survivor's response-whether or not she defines her experience as a rape, whether she reports the incident and seeks other resources, and how she feels about herself. Thus, this research sought to understand these responses and examine gender differences in how students make

meaning of the scenario, whether or not they define it as a rape and how they support and conversely, blame the victim. Two hundred undergraduate students, aged 18-24, listened to an audio vignette of a woman describing a date rape experience and responded to her as if they were her friend. Findings of similarity and differences and the implication for peer education programs are discussed.

D2 The Cost of Caring: The Impact of Supporting Women Who Experience Rape

Melissa Maki, Chris Schwinghammer, Deb Mayer, Deb Ingmire
Faculty Sponsor: Elizabeth Scheel Department: SOC/ANT

One hundred women from California and 100 men and women from Minnesota participated in a study examining social responses to rape victims by listening and responding to an audio vignette of a woman describing a date rape experience. This paper explores the impact on persons who listen to, support, and advise date rape victims. Female participants expressed a wide range of negative emotions and reported feeling more aware of their own vulnerability. Few women, however, reported intentions to take extra precautions and few believed that they could change such conditions for women. Comparisons with male participants and comparisons between California and Minnesota samples are discussed along with the implications for support and educational services directed at all women, implications for counselors, police and advocates, and ethical considerations in conducting research are discussed.

E1 Concurrent Product and Process Design
Greg Reineccius, Nathan Dusheck

Faculty Sponsor: Steven Covey Department: MfgE

Our project consisted of two stages: First, the mechanical design of an injection molded product performed for the Antioch Co. This consisted of solid modeling finite element analysis and physical testing of the prototypes developed. The second stage involved researching the injection molding manufacturing processes, which would be used to manufacture products similar to the product developed in stage one. This research was verified using experimental modeling and analysis at St. Cloud State University. The design requirements were to develop a long-term storage container, which was environmentally sealed and allowed for easy organization of photographic media. Stage one began by solid modeling and finite element analysis (FEA). The initial design was then given to the chosen vendor and pre-production prototypes were created. Stage two consisted of prototype analysis, testing, and re-design according to marketing and engineering specifications. Stage three involved the creation of production tooling, trial production runs, further product testing and evaluation. The first stage of our process design procedure involved researching the injection molding process used for manufacturing products of a similar nature to the one we developed. This research led to in-depth study into thermoplastic mold design. Next, we applied this knowledge to designing a simplified representation of the storage container. This involved selecting a mold design. Our design considerations included mold material, product material, cavity volume vs. available shot volume, runner design, gate design, venting, shrinkage,

parting lines, etc. Upon completion of manufacturing the mold in-house, shots can be run according to the experimental procedure defined. The procedure involves alternating settings in a prescribed manner and recording the variation of quality characteristics of importance. Parameter effect and interaction effects can then be organized in a weighted arrangement. Understanding the parameters and their effects can then help identify possible solutions to quality defects noticed in the prototypes of the actual storage units manufactured.

E2, Single Line Multi-User Telephone System

H6 Mike Hanson, Kristin Lindholm, Aaron Weyer

Faculty Sponsor: Bruce Ellis

Department: EE

The single line multi-user telephone system will allow the caller to enter the extension of the person they wish to talk in single family homes, small businesses and student housing. The system will then ring only the extension of the person whom the caller wishes to speak to. The system consists of two components: the main module and extension modules. The main module is responsible for answering the phone, playing a recording, and then ringing the correct extension. The extension modules decode the address from the main module and then allow the ring signal to pass if the addresses match.

E3 PCR Analysis of the Microsatellite Marker Cervid-1 in Minnesota White-Tailed Deer

Jason Clayton

Faculty Sponsor: Denise McGuire

Department: BIO

Microsatellite DNA sequences are short segments of DNA consisting of a simple repeat motif, occurring randomly dispersed throughout eukaryotic genomes. Microsatellite sequences often exhibit length polymorphisms, speculated to have arisen from polymerase slippage during DNA replication. Polymorphic microsatellite sequences are of particular interest because they are different from one individual to the next. This unique characteristic allows their use as markers for genetic identification and population analysis. The object of this study was to design a safe and efficient method for analysis of the length polymorphisms, and subsequently apply the method to the analysis of the Cervid-1 microsatellite marker sequence within a Central Minnesota white-tailed deer population. Information resulting from this analysis could ultimately be useful to wildlife conservation personnel for determining the lineage of specific populations of white-tailed deer. The genome of a pedigreed white-tailed deer herd, managed in Hunt, Texas, was previously analyzed by J.A. DeWoody et al (1995) for the presence of microsatellite sequences consisting of the simple dinucleotide repeat $d(AC)_n$. Seven $d(AC)_n$ microsatellite sequences were verified and unique PCR primers were designed for each of the seven loci. The study reported here employed the use of the Polymerase Chain Reaction (PCR) for its fast and effective methodology. This technique makes many copies of a DNA sequence, specified by the PCR primers. The template DNA from which the copies are made was provided by white-tailed deer genomic DNA, extracted from the deer hair follicles. PCR was performed on the

genomic DNA using the previously designed PCR primers specific for the Cervid-1 microsatellite marker locus. The various lengths of the microsatellite marker

E4 Determination of Rat Transamidinase Gene Structure Using PCRq

Renee Samuelson

Faculty Sponsor: Denise McGuire

Department: BIO

Creatine monophosphate is used as an energy storage molecule in skeletal muscles. The molecule works by transferring a phosphate to ADP during tissue stress. Transamidinase is the enzyme which catalyzes the rate-limiting step in creatine monophosphate synthesis. The goal of this study is to determine the arrangement of introns and exons in the transamidinase gene. Knowledge of this structural arrangement will provide information on the regulation of the gene and the creatine monophosphate synthesis pathway. The techniques primarily used in this study are polymerase chain reaction (PCR) and agarose gel electrophoresis. Using PCR, specific segments of a gene bounded by short sequences called primers are amplified. The primers used here amplify 200-300 base pair segments of the transamidinase cDNA which contains only exons. These primers are applied to genomic DNA, and the sizes of the PCR products are visualized using agarose gel electrophoresis. If the fragment is the same length as the cDNA segment, no intron is present. If the fragment is larger, an intron is present in the segment bounded by the primers. These techniques are being applied to consecutive segments along the gene in order to determine its structure. Preliminary results indicate a lack of introns in the first 600 base pairs of the gene. Evidence of introns has been found in the central region of the gene which warrants further investigation.

F1, Emergency Vehicle Advanced Warning System

H7 Christian Banks, Rashid Nadeem, Pao Xiong

Faculty Sponsor: J. Michael Heneghan

Department: EE

Rapidly increasing populations have had many effects on cities. One effect is the dramatic increase of traffic congestion. The increase in congestion has been a very big concern for emergency vehicles of all kinds. The Emergency Vehicle Advance Warning System was designed to minimize the time spent by the operator turning on and changing the state of their emergency lighting and siren equipment. The project involved designing and implementing a central hub, mounted in the trunk or other out-of-the-way place, that controlled all of the lighting and siren equipment simultaneously. A laptop computer within the reach of the operator interfaces the hub. The switching of the warning equipment is done by a single keystroke. The operations done by the hub corresponding to each keystroke are programmable, much like a macro in a word processor. Because of the programmability, any user may tailor the system to their personal (or departmental) taste.

F2, H8 A High Resolution Pin - Matrix Computer Display for the Blind and Visually Impaired

Lloyd Dalton, Sultan Faiz, Rabindra Sainju

Faculty Sponsor: Aswartha Narayana Department: EE

The project objective is to design and prototype a high-resolution pin-matrix computer display. The display will use tiny actuator pins in place of pixels to duplicate the output of a black-and-white monitor, in a form readable by blind and visually impaired persons. New actuator technology has created the potential for greater resolution and pin displays. During this project, a team of Electrical Engineering students will develop such a high-resolution display, assisted by faculty advisors, visually impaired persons, and representatives from university and state agencies for the blind. This resulting device will enable blind and visually impaired persons to access graphical information stored in electronic form. It will also make modern computer interfaces completely accessible to the visually disabled.

F3 The Road Less Traveled: Elderly Skills for Travel Adaptations Pertaining to Low Visual Blindness

Robin Exsted

Faculty Sponsor: Marlene DeVoe Department: PSYC

The ability to travel within one's community either independently or accompanied by others is a fundamental aspect of many routines of daily life. There is practical importance of travel beyond one's home environment, and there is potential for a visual impairment to impact that travel. One of the most significant and immediate consequences of blindness and low vision has to do with the ability to travel through the physical and social environment, to anticipate and, thus, to have some control over that environment. This presentation reviews the results of a study that compared adaptive travel skills of elderly adults who were congenitally blind/low vision to those for whom the visual impairment occurred at a later age. The study determined which factors relating to their vision loss had the greatest impact on travel skills.

F4 Gender Differences in Autistic Children

Tami Lou McDowell

Faculty Sponsor: Zoa Rockenstein Department: PSYC

Autism is a severe, lifelong, pervasive developmental disorder which is prevalent in males four times more than females. Second to the delay of communicative skills, the primary symptom of autism is a deficit in social interactions. People with autism are unable to develop normal social relationships and to understand social situations which results in inappropriate behaviors. Varying levels of deficits determine the varying seriousness of the disorder. The present study attempts to ascertain gender differences in two children diagnosed with autism by observing their interactions in a social situation. Target behaviors studied included conversational skills, presence of inappropriate behaviors, conflict resolution, types of games played and how many children interacting in play at a time. Research using males as primary subjects may

not be able to be generalized to female autistic children. The results of this study may shed light on the gender differences in autism and allow for more individualized treatment of those afflicted.

G1 Supplemental Instruction via the Internet

Mark Rodel, Chris Schriever

Faculty Sponsor: Gretchen Starks-Martin Department: Academic

Over the past few years the use of the Internet and computer technologies has become an important part of the learning process. Smart classrooms and student projects involving the use of the Internet are becoming commonplace. The purpose of this presentation is to inform students and faculty of some of the possibilities available for using the Internet and PowerPoint to enhance student learning and comprehension of class materials. The presenters have been active in successfully developing study materials for tutoring at the Academic Learning Center. An overview of web-site/PowerPoint construction for tutoring purposes will be given and web-site tutorials for Biology 101 and 102 and PowerPoint Theater and Film 140 presentations will be viewed.

G2 Contrastive Rhetoric

Kai-Sven Beckert

Faculty Sponsor: Jorn Commers Department: FORL

Contrastive rhetoric, a branch of contrastive linguistics, studies differences in the writing of different ethnic groups. Robert Kaplan may be considered the founder of the branch as in 1966 he published a pioneering paper with the title "Cultural Thought Patterns in Intercultural Education." The paper, in essence, claims that different ethnic groups have different preferences as to how to organize academic essays. Starting with that paper, a wealth of studies came about. This presentation will be concerned with a comparison of American and German academic writing. It will demonstrate differences that can be found when observing American and German academic writing. It will also demonstrate that there are implications for cross-cultural communication when the two ethnic groups meet.

G3 Learner Styles and Foreign Language Learning

Jennifer Eersland-Beckert

Faculty Sponsor: Marya Teutsch-Dwyer Department: ENGL/TES

All people are different learners. A learning style is the way that one person learns, based upon techniques that person uses to learn material. Bernice McCarthy, an educator, has conducted research on learning styles in order to improve the possibilities of success for students. McCarthy states that the learning style of the instructor may predetermine the way the material is presented, as well as how the exercises are conducted. This presentation will discuss the findings of research that were conducted with students and the instructor in a language learning environment. The objectives of my research were to see what happened when the student's learning style did not

match that of the instructor and to see if a student's learning style affected his/her performance in studying vocabulary and syntax.

G4 The Multicultural Classroom: What Happens and What Do Teachers and Students Need

Virginia Ferlet, Lily Arifin, Anne Lawrence

Faculty Sponsor: James H. Robinson

Department: ENG

This triad presentation will focus on the following: interpretations of what constitutes a 'good' student, or teacher, via an individual's cultural perception, the role of silence in international students' classroom participation, and the impact increased wait times have on the multicultural classroom setting. Our presentation will begin with information regarding the notion of the 'good' student, and teacher, from an international student perspective. What are the cultural norms for international students and how do these differ from norms of American students? For example, a good student in Indonesia is one who is quiet, waits to be called on, takes notes, etc. In addition to the good student we will examine the concept of the 'good' teacher via the perception of the Indonesian student. What is a 'good' teacher? And what do they do they do for their students? Next we will move to the topic of silence in the classroom. We will explore the idea of non-behavior and participation from culture to culture and the implications these interpretations have on students and their instructors. Suggestions on how to increase instructor and classmate understanding of 'silent' feedback will be offered. Finally, we will present information on wait-times and how they impact student communication. What are the positive effects of extended wait-times? If students benefit from periods of uninterrupted time what are these benefits and how do they impact classroom participation?

H1 Optical Properties of Samarium Doped Fluorophosphate Glass

Andrea Tollison

Faculty Sponsor: Richard Brundage

Department: PAES

We want to create a glass sample that contains divalent samarium (Sm). Usually rare earth atoms, including Sm, occur in nature in trivalent form, which means they give up three electrons to form bonds with a host. Europium (Eu), and Sm are different. These atoms may be divalent, which means they give up two electrons to form bonds. We start with chunks of fluorophosphate glass, and grind them into a powder. Then we add samarium fluoride, about 8 mg per 1 gram glass, and mix them together. When we melt this mixture we create a new glass that has samarium ions as part of the glass structure. We will determine if we have divalent Sm by looking at the emission spectrum of the glass and comparing it to published spectra of divalent and trivalent Sm. An emission spectrum is a graph of the intensity of the fluorescence versus wavelength. It allows us to see which wavelengths of light the sample is giving off. Previously, we created a divalent Eu glass sample. Then we photoionized the Eu from divalent to trivalent. Photoionization is the process of using light to remove an electron

from an atom. We found this trivalent Eu has a longer coherence time than trivalent Eu in other glasses, which could lead to applications in optical data storage. If we can make divalent Sm we will attempt to photoionize it. We will study Sm to find out if the longer coherence time is unique to Eu, or if it may be a result of our photoionization process. We would like to thank Dr. Joseph Hayden from Schott Glass Technologies Inc. for the fluorophosphate glass and the samarium fluoride powder.

H2 The Split Ram Process

Jeff Henry, Jeremiah Neubert

Faculty Sponsor: Youpeng Zong

Department: MfgE

The objectives of this project were to design a process that will allow for a single thin-walled aluminum casting to be made from a no-bake sand mold that has been rammed as two or more sections. That is to say, each drag and cope is made up of smaller sections that must be held together when the melted aluminum is poured. This is done while maintaining strict dimensional accuracy. The next step was to determine the capital investments necessary for the implementation of the process, and lastly to write the Standard Operating Procedure (SOP) for the Split Ram Process. In general, the tools (castings) made by this process will be for producing watercraft, made by the rotationally molded plastics industry. The casting process, as carried out at Lakeland Mold Company, utilizes three sets of sand molds. Each of these molds are made up of a drag ram and a cope ram, so each tool requires at least six split processes to be carried out. As each succeeding process is carried out, the dimensional errors from the past step are added to any errors from the current step. From this concept, it is obvious that the dimensional mismatch for any one step must be near zero. When these rams are split into smaller pieces the resulting reduction in weight allows for the manipulation of molds for larger castings without the capital expenditure of a crane upgrade. Furthermore, there is an appreciable gain in employee safety with the reduction in size and weight of the sand rams, which can weigh up to ten tons.

H3 The Traveling Salesman Delivers the Mail at SCSU

Michael J. Dvorak

Faculty Sponsor: Dale R. Buske

Department: MATH

How does the human intuition compare to a computer that can make millions of computations per second? We put intuition to the test on the Saint Cloud State University campus. This research project utilizes a branch of mathematics called graph theory. One class of problems in graph theory is called the Traveling Salesman Problem. TSP's involve the optimization of traveling (trying to find the route with the least cost) from point to point in a network of cities, residences, computers, etc.... Our goal in this project was to "optimize" the campus mail system using various mathematical algorithms (step by step processes) and then compare this to the human route already in existence. Utilizing computers, aerial photographs, and various algorithms, we were able to compare human intuitive sense to raw computing power.

H4 Design and function of Computer Enhanced Monark Exercise Bike

Michael Rasmussen

Faculty Sponsor: Glenn Street

Department: HPERSS

The mechanically-braked Monark™ cycle ergometer is used by virtually every exercise physiology laboratory in the world to measure power. The major limitation of this ergometer is that it does not measure power directly. To determine power, the user must monitor and adjust pedaling resistance, and count flywheel revolutions. The purpose of this project was to design a simple, inexpensive, and effective computerized device (CRM) that can be installed on the Monark™ to automatically set and measure pedaling resistance, flywheel velocity and power. The CRM was designed to measure velocity by use of an optical sensor, as well as measure resistance with a potentiometer that measures deflection of a calibrated linear spring. Resistance is automatically adjusted via a servo-loop and a desktop computer is used to calculate and display the cyclist's power (flywheel resistance x velocity). Force calibration of the CRM revealed a linear and precise response ($r^2=0.999$, \pm SD= 0.035 k Ω (0.9% of range)).

H5 Rapakivi Granites of St. Cloud

Jason Asselin

Faculty Sponsor: Jean Hoff

Department: ESCI

Steams County hosts many varieties of granite. The occurrence of a somewhat rare porphyritic granite called rapakivi granite is found throughout the County. It does not cover a large area and is not ornamentally endowed; therefore it is not quarried. The term rapakivi is given to porphyritic rocks containing megacrysts of oligoclase-mantled potassium feldspar. The rapakivi studied for this paper is found under the Sauk Rapids bridge on the west side of the river. How rapakivi granites are formed is the question at hand. These megacrysts are believed to have formed during magmatic cooling. For this study 10 samples were collected across the outcrop starting at a basalt dike contact 200 feet downstream from the bridge. Recognizing the patterns that exist in thin section illustrates the history of the rapakivi outcrop. From thin section analysis, differences in size, shape, orientation, number and amount of fracturing all lead to a conclusion of how the outcrop was formed. It is anticipated that the megacrysts will vary in size and orientation across the outcrop. The crystals will possibly show greater fracture closer to the basalt dike. Discovering variations in the megacrysts across the outcrop is the goal of this research. It is anticipated that these results will bring light to the formational history of the outcrop.

H9 A CCD Imaging Archive of Comet Giacobini-Zinner

Jean Zilka, Sarah Reed, Brian Henning, April Homich, Mike Spinar, Frank Deglman

Faculty Sponsor: Maria Womack

Department: PAES

At the St. Cloud State University Observatory, between the dates of June 26, 1998 to December 1, 1998, we observed comet 21/P Giacobini-Zinner (GZ). Images were taken

with the Santa Barbara Instruments Group (SBIG) ST-6 CCD (charge-coupled device) camera in conjunction with Meade LX200 10" and 16" telescopes. Separate images were gathered using clear, green, blue and red filters and a Johnson-Cousins UVBRI photometric filter set. Images were reduced and analyzed using IRAF (Image Reduction and Analysis Facility) and compiled to create an archive showing the activity of comet GZ. We will display images from each night and discuss them.

H10 Galaxy Morphology

Frank Deglman

Faculty Sponsor: Maria Womack

Department: PAES

A series of four CCD images is presented showing the morphology of several types of galaxies. These images were obtained between 15 February and 02 March 1999 using the 16" Schmidt-Cassegrain reflecting telescope at the Saint Cloud State University Observatory. The three major categories of galaxies are elliptical, spiral and irregular. The spiral galaxies are further divided into two types: ordinary and barred spirals. The four galaxies shown are M51 (spiral) in the constellation Canes Venatici, M60 (elliptical) in Virgo, M82 (irregular) in Ursa Major and M95 (barred spiral) in Leo. The images have been spatially filtered so as to preferentially enhance various features. The implications of the differing observed structure will be discussed.

H11 Date Rape

Sarah Welken

Faculty Sponsor: Gerianne Klug

Department: WS

Date rape is more common than what most people think. It needs to be recognized as a problem in society. Date rape occurs at high schools, colleges and at work places. These places need to learn to deal with the topic of date rape. On college campuses, 1 in 8 women have experienced date rape. Many women do not realize that this is rape or that what is occurring is wrong. This pamphlet contains statistics, suggestions on how to avoid date rape and what to do if someone tries to rape a woman. It also contains phone numbers for a person to call and receive help. The purpose of this pamphlet is to bring attention to the problem of date rape.

H12 Inoculant Injection Improvement for Casting Process

Jared Johnson, Chris Piontek, Gordon Bekkala

Faculty Sponsor: Andrew Bekkala

Department: MfgE

Modern foundries are complex, high production facilities. High volume production requires accurate machines and devices to ensure production quality. These devices range from automatic pouring devices, and molding machines to the sand regeneration system. Quality is essential to the finished products' performance. Products lacking good material properties or containing physical flaws are a hazard to the consumer. Thus, foundries need consistent methods and procedures at every step of the casting process to ensure product a quality. The focus of this project is the inoculant injection process. This is the process of alloying iron with a substance that changes the cast

iron's properties from brittle gray iron to ductile iron. This process occurs at the pour site. As molten iron is poured into a casting, small particles are discharged from a nozzle and shot into the molten iron stream. These particles are the inoculant which change the casting's properties. The mission of our project is to improve the inoculant injection process. The improvement of this system will be accomplished by focusing on several objectives. These objectives are listed below: (A) Improve Inoculant Monitoring System: The quantity of inoculant injected into each casting, or per unit weight should be better controlled. This will allow better control of casting properties. (B) Reduce Waste Inoculant: The amount of over-spray or percent of the inoculant sprayed that does not enter into the molten iron can be decreased, thus using the inoculant more efficiently. (C) Improve Ease of Use: The inoculant system can be designed with an ergonomical factor. This will increase the user friendliness of the system and reliability.

H13 Women in History

Shanalea Kraker, Jenny Spears

Faculty Sponsor: Gerianne Klug

Department: WS

We developed a curriculum about women in history that was accepted as part of the curriculum for a history class at Melrose Senior High. We felt that these women were not being recognized for their huge accomplishments, so we wanted to make people more aware of these women by convincing a high school to include our curriculum at their high school. We included twenty biographies of women in history in our curriculum, some of them are: Mae C. Jemison, Clara Barton, Antoinette Brown, Elizabeth Cady Stanton, Amelia Earhart, Susan B. Anthony, Gwendolyn Brooks, and Bessie Coleman. We developed this curriculum to give these women recognition for their accomplishments. We also felt men were being credited more throughout history and think that these women deserve the same. This curriculum will give students more of an overall view in American history.

H14 Design Sequence of Automated Machinery

Jason Hammerback, Shawn Omann

Faculty Sponsor: Warren Yu

Department: MfgE

Automation equipment is the backbone of today's modern manufacturing systems. The purpose of automation is to increase productivity of a manufacturing process, while reducing human labor involved. This project utilized engineering principles in order to design an automated surface sanding machine for a local plastic injection molding company. A series of steps known as the design sequence were utilized in order to successfully complete this project. The initial stages of this sequence included definition of need, and cost justification. Multiple feasible conceptual designs were presented and an optimum design was selected based on which concept best fulfilled the customer's requirements. A detailed design was created using computer-aided solid modeling and the machine was manufactured from drawings created from this model. The final stages of the sequence included debugging and implementation of the new machine into the customer's

H15 CO2-TEA Laser Workstation

Joel Eggert, Chris Degraw

Faculty Sponsor: Andrew Bekkala

Department: MfgE

Many different laser machining processes are the technology behind the unique job shop capabilities of Edina based SPECTRAlytics, Inc. Systems using Nd:YAG, Excimer, and TEA lasers utilize the unique abilities of each laser to machine a variety of parts. To quickly execute the variety of jobs done by each laser, workstations need to be versatile and reliable. The report covers the steps taken in the design of a TEA laser workstation, and the strides taken to insure versatile and reliable performance. A variety of specifications were used to accomplish the workstation design, two of which being the most important. These specifications were the beam demagnification range and the x-y-z translation stage movement. Development of math models allowed for the design to be optimized. With the design of the workstation based around these outlined parameters, SPECTRAlytics operators should have high confidence in the ability of the TEA workstation to produce parts within specifications applied by the customer.

H16 Peer Support and Safer Sex Decisions of Lesbian-Gay-Bisexual Youth

Tonya Faundeen

Faculty Sponsor: Elizabeth Scheel

Department: SOC/ANT

At least 5-10% of all adolescents may be gay, lesbian, or bisexual (Friedman). For various reasons, this group is disproportionately affected by HIV (Human Immunodeficiency Virus) and other STDs (Sexually Transmitted Diseases). A study done by the National Center for Health Statistics revealed that HIV is the 6th leading cause of death for all people ages 15-24. However, there has been little research specifically on the homosexual and bisexual adolescent segment of the population that evaluates what influences these young people's decisions about safer sex. Much data is extrapolated from research done on heterosexual youth and applied to homosexual and bisexual youth. In this study the past and present peer support networks and social interactions of lesbian and gay college students were examined to find how these interactions affected the individuals' perceived senses of risk for exposure to HIV or another STD and their senses of self-efficacy to perform safer sex behaviors. Seven qualitative, semi-structured interviews were conducted of students, ages 18-25, identifying as lesbian or gay and attending a moderate-sized, mid-western university. As part of the interview, the subjects also created a sociogram of their support systems in high school and college that was used in the interview processes. While data analysis is still being conducted, preliminary findings suggest two strong relationships. 1) A strong association with the lesbian, gay, bisexual and transgender community appears to be related to a higher sense of self-efficacy to perform safer sex behaviors and a lower perceived sense of risk for exposure to HIV or STD and 2) higher acceptance and support of immediate family members also appears to result in a higher sense of self-efficacy and lower perceived risk. Implications for this research are in safer sex education and curriculum development as well as in designing services to meet the needs of LGBT adolescents and their families and friends.

H17 The Effect of a Diversity Workshop on Multi-Cultural Attitudes Towards SCSU

Jason Mrozek, Curt Nordgaard, Nikki Moore

Faculty Sponsor: Wendy Braje

Department: PSYC

The purpose of this study was to empirically test the effectiveness of a seminar presented by Dr. Bassey Eyo. This seminar was designed to increase appreciation for diversity at St. Cloud State University and throughout the community. Factors such as increased awareness and understanding of diversity, perceptions of campus climate and allocation of university funds were evaluated before and after the implementation of the seminar. The evaluations were performed using the Multi-Cultural Assessment of Campus Programming (MAC-P) questionnaire, developed by Sue Ann McClellan and Pamela Cogdal (both at the University of Memphis). Although it was hypothesized that participant's perceptions to SCSU's treatment of diversity would change following completion of the seminar, a repeated measures Analysis of Variance (ANOVA) using an alpha level of .05 resulted in neither a significant main effect ($p < 0.219$) of test type (pre vs. post) nor a significant interaction between test type and condition ($p < 0.154$).

H18 Illustrating the Developmental Stages of Life: A Personal Perspective on Physical, Cognitive, and Psychosocial Development

Nikki Moore

Faculty Sponsor: Marlene DeVoe

Department: PSYC

Envisioning one's early developmental processes, current life stages, and future developments of a physical, cognitive, and psychosocial nature is possible via journaling and biographical self-reflection. This personal perspective, based on an original class project in Dr. Marlene DeVoe's Developmental Psychology course at St. Cloud State University, examines the 10 stages of development, illustrating the major changes that take place throughout each. Self-reflection and journaling methods are useful tools for discovering and understanding one's past as well as contemplating future developments in life. For an individual, this experience is enlightening as it promotes self-awareness and reveals undeniable similarities among us all. Narration and illustration makes this interpretation of human development personal, entertaining, and realistic.

H19 Influences of Gender and Power on Perceptions of Mixed-Sex Dyads

Lori Korte, Brenda Degner, Kelly Cornell, Jason Mrozek

Faculty Sponsor: Marlene DeVoe

Department: PSYC

Previous research has shown that a violation of conversational norms, such as an interruption, results in a speaker being viewed differently depending on his or her gender (LaFrance, 1992). This study looked at how a speaker was viewed after interrupting or being interrupted depending on gender and a specific status role that was

assigned to them. Students from four psychology classes rated speakers in four mixed-sex dyad tapes. Results showed that there was no difference in how speakers of different genders were rated when in the same power role. There was a significant difference between how the interrupter and interruptee were rated.

H20 Lactate Comparisons in Distance Runners: Training Versus Racing

Mollee Ludtke, Paige Baker

Faculty Sponsor: John Seifert

Department: HPERSS

The purpose of the following study was to investigate the correlation between blood lactic acid (bLA) and heartrate (HR) levels in relation to men's 3000m race finish times. Based on these results, further analysis was performed in an attempt to identify potential carryover effects between prior to training days and the day of competition. For the study, bLA's and HR's of six collegiate-level male distance runners were obtained on two consecutive training days and one competition day. The first training day consisted of ten 450m hill repeats, with an average pace of 75 seconds uphill and two minutes downhill. BLA's and HR's were obtained within one minute after the fifth hill repeat, and again, after the completion of the workout. For the second consecutive training day, subjects performed a recovery run at approximately seven minutes per mile pace. Distance varied between subjects. BLA's and HR's were obtained within a minute following the completion of the run. Race day results were obtained two days following the recovery run. After completion of a 3000 in race, subject bLA's and HR's were obtained within one minute of the finish. Race finish times for the six subjects ranged from 8:48 min. to 9:23 min. A statistical analysis of race time finish in relationship to bLA and FIR levels was performed, and conclusions were drawn as to whether or not carryover effects existed. Findings suggested no significant correlation between race time finish and bLA ($r = -.1, p=.8$) and HR ($r = .4, p = .4$) levels. There also appeared to be no carryover effect for any of the subjects between training days, and from training days to race day. It can be concluded therefore, that other external factors (ie. muscle fiber type, training status) may play a significant role in bLA and HR response to various intensities in male distance runners.

H21 Comparison of Peak Kicking Force Between Position and Leg Of Women Soccer Players

Keli Holmes

Faculty Sponsor: Glenn Street

Department: HPERSS

In soccer it is considered desirable to be able to kick equally well with both feet. Unfortunately, this quality is not possessed by most players regardless of skill level. The purpose of this study is to determine the amount of difference in dominant/non-dominant foot kicking ability. A comparison will also be made to determine whether or not there is a difference in kicking ability between the player positions. To measure peak kicking force, each subject was required to kick a ball a total of ten times (five times with each

foot). With each kick the ball was only allowed to travel 6.67 meters. A timing device was incorporated to measure the elapsed time of travel of the ball. With these data and the measured weight of the ball and carrying device, the kicking force was determined using the equation net $F = ma$. For each foot of each subject the two shortest elapsed times were averaged and used for the calculation of the peak kicking force. The expected outcome is that there will be a difference in kicking ability between the feet of the subjects and between the ability of the different player positions.

H22 On and Off Ice Performance Testing of NCAA Division I Women Ice Hockey Players

Eric Fenstad, Scott McMillan

Faculty Sponsor: John Seifert

Department: HPERSS

The goal of this descriptive study was to develop an athletic profile on a Division 1, NCAA Women's ice Hockey Team ($n=19$) and to introduce two new on-ice anaerobic capacity tests (S&M tests). The traditional off ice tests included a 30-sec Wingate, vertical jump, T-test, 12-min run, push-ups, and an on-ice speed test. The S&M test ($n=9$) for forward positional players included forward skating, acceleration, a crossover turn, a sharp turn, and stopping. The S&M test for defensive positional players ($n=5$) included backward and forward skating, acceleration pivoting, and stopping. Average team results (+SD) for: Peak power (PP) was 8,04 (1.52) W/kg, mean power (MP) was 6.62 (0.84) W/kg, decrease in power was 32.05 (12.56)%, vertical jump (VJ) was 37 (5.3) cm, finishing time for the T-test was 11.98 (0.8 1) sec, predicted VO_{2max} from die 12-min run was 40.4 (5.4) ml/kg/min, 8.3 (6.26) push-ups were completed, and the on-ice speed test time (SPD) was 2.03 (0.07) sec. The average time to complete the forward S&M test was 57.86 sec. The forward S&M correlated with peak power, mean power, and the T-test (r^2 : .62, .42, .34, respectively). A best subset regression showed peak power, mean power and vertical jump as the best predictors of S&M test time ($R^2 = .87$, $s=0.86$). Defensive S&M test duration was 43.38 sec with defensive S&M test r^2 values of .75 and .75 for T-test and VJ, respectively. The best subset regression identified VJ, T-test and SPD as the best predictors of S&M time ($R^2=0.996$, $s=0.288$). To conclude, the new S&M tests appear to test many of the necessary athletic components required for hockey performance and warrant further study.

H23 Physiological Comparison of Freestyle and Classic Nordic Skiing in College Women

Kristi Chupurdia

Faculty Sponsor: David Bacharach

Department: HPERSS

The purpose of this study was to analyze the velocity and physiological responses of two nordic skiing techniques: classic and freestyle. Blood lactate (bLA) and heart rate (HR) were obtained during four levels of training: Level I (base training), Level II (developmental training), Level III (threshold training), Level IV (race pace). Ten female collegiate cross country skiers experienced with both techniques skied on two days

within the same week. Subjects skied a 0.625 km groomed loop on level terrain. Subjects started at level I and progressed to level IV with a rest interval between loops. On completion of each loop, ski time and HR were recorded while a fingertip bLA was collected. Loop times were faster for each progressive training level and freestyle loop times were all faster than classic loop times. In spite of skiing faster when using the freestyle technique the only HR difference occurred at level I ($p < 0.01$). A bLA difference did not occur between freestyle and classic skiing at any training level ($p < 0.01$). Velocity at each level was significantly greater for freestyle technique than classical technique ($p < 0.01$). In reference to velocity a direct correlation existed with HR and bLA ($r = .79, .74$ respectfully). Technique type does not have an influence on physiological parameters when the skiers ski at a given perceptual effort, however, technique does have a influence on velocity and the physiological parameters in reference to velocity.

H24 Daily Volume Change in Below Knee Amputees

Wayne Board

Faculty Sponsor: Glenn Street

Department: HPERSS

Most below knee (BK) amputees experience hourly volume loss in their amputation limb (AL) in response to pressure applied by their prosthetic socket system. Volume loss leads to a loose fit between the limb and the socket. A poor fitting socket can cause in skin ulcers or failure of the socket liner material. Determining the magnitude of daily volume change is important in the design of a BK prosthetic socket that either compensates for or circumvents volume loss. To measure limb volume loss during the day, limb volumes were measured at approximately two hour intervals on four BK amputees. The limbs were casted with Alginate™. These casts were filled with water, weighed, and the volume determined from the weight. Volume loss ranged from 10% in long BK-AL (length approximately 20 cm from knee to end of the limb) to 4 % in small limbs (length approximately 10 cm). The dimensional changes in a socket that are needed to compensate for a 10% volume loss in a long limb are -0.28 cm in radius, -2 cm in circumference, and -30 cm² in area. Funding for this project provided by TEC Interface Systems™.

H25 Using Linear Regression to Predict Maximum Temperatures from 1000-850 mb Thickness

Jennette Pipp

Faculty Sponsor: Gregory Nastrom

Department: ESCI

Meteorologists are always looking for ways to make forecasts more reliable. A few studies have been done on model forecasted thickness vs. daily maximum temperature. The hypsometric equation shows the relationship among the difference in height between two pressure levels (thickness ΔZ) and average virtual temperature (T_v) within the layer: $\Delta Z = \frac{RT_v}{g} \ln(P_1/P_2)$. The goal of this study was to find regression equations that would give accurate maximum temperatures and to see what effect cloud cover has on the temperature forecast. Observations were needed for this study. Some of this

data included: 1000-850-millibar (mb) thickness, daily maximum temperature, vertical temperature profiles, and sunshine data. Using a database analysis routine, a linear regression equation was formed by regression of the models' 24-hour forecasted 1000-850-mb thickness with the actual observed maximum temperature. The linear regression equations were broken up into three periods (June 21-Aug 20, Aug 21-Oct 20, Oct 21-Dec 20) to refine the forecast. It was found that on days with at least 70% of possible sunshine (except 60% during period three) the standard deviation of the errors of the regression equations forecasts were 2.5°F- 4°F, depending on the period. Taking into account days that had less than 70% of possible sunshine the standard deviation of the errors were 3°F-5°F. These are useful predictions and would be considered operationally reliable forecasts.

H26 Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition

Christopher Horsmann, Derek Schilling, Bart Johnson, Chad Macheel, Jason Strand, Daniel Jaszczak, Matthew Clarke, Reuben Heine, John Kedrowski, Jeffery Gertken

Faculty Sponsor: Jean Hoff

Department: ESCI

During the fall of 1998, the Field Geology class conducted an investigation and mapping project of an outcrop in the recently acquired 30 acres of Stearns County Quarry Park and Nature Preserve, Waite Park, Minnesota. Three main rock types were identified, a red granite, a gray granite, and a basalt. Due to the deep weathering of the outcrop surface the granites were differentiated by slight differences in color, mineral grain size, mineralogy, and rock texture. The red granite is characterized by its red color, large (5-10mm) potassium feldspar crystals, and an absence of dark minerals. This rock type was identified as the St. Cloud Red Granite. The gray granite was distinguished from the red granite by small (1-5mm) crystals, the presence of dark minerals, and a higher concentration of quartz. This rock type was identified as the Reformatory Gray Granite. There are two northeast trending basalt dikes cutting across the southern end of the outcrop which crosscut both types of granite. Trending in the same direction as the dikes are shear zones and a joint system. Volumes of the red and gray granite are intricately intermingled but have sharp contacts without chill margins. Our interpretation of this site includes two major geologic events. The first was a plastic deformation of an existing granitic pluton which caused the intermingling of the two granites. This was followed by a period of brittle deformation which caused the fracturing and joint systems and allowed for basalt to fill some of the larger fractures. Our findings contradict previous work done for the Stearns County Atlas (Boreboom, Chandler, Setterholm, 1995), as well as work specific to Quarry Park by Shurr and Anderson (1995).

H27 Field Study of Reformatory Granite, College Quarries

Brian Millard

Faculty Sponsor: Jean Hoff

Department: ESCI

In east-central Minnesota several large plutons of generally sodic composition were emplaced at the end of the Penokean Orogeny. These rock bodies have been interpreted to be Middle Precambrian of about 1.8 billion years old. Accurate maps and observations of specific outcrops of such granite is the focus of this study. In south-east St. Cloud there are quarried outcrops of this light to dark gray granite. Many of these outcrops are intruded by veins of a potassium feldspar rich, red, granite. Veins tend in certain directions, either 40-60 degrees east of north or 100-130 degrees east of north. In this area there are entire outcrops of this coarser grained K-spar granite type. Intrusions of the K-spar rich granite alter the surrounding sodic rich granites' composition. The alteration occurs as an increase in K-spar into the sodic rich granite. This alteration is more prevalent in the east and the south central portions of the study area.

H28 A Hydrological Study of Otter Creek

Kendra Sprague

Faculty Sponsor: Charles Nelson

Department: ESCI

The purpose of this project is to develop a computerized-model prediction of streamflow in Otter Creek. This project is the first part of a larger study of Otter Creek involving comparison of the computer-model predicted streamflow and streamflow from actual rainfall events. Otter Creek empties into the Mississippi River in Monticello, Minnesota. The watershed extends to the southeast of the Mississippi River along the northwest and southeast of Monticello. Otter Creek was chosen for this study because it is close to St. Cloud and is a small river in terms of watershed area, channel width, and streamflow. The Watershed Management System (WMS), Visual Hydrologic Engineering Center-1, and EPPL7 computer models are used to analyze and predict streamflow in Otter Creek. The flow path and watershed are determined from computerized United States Geological Survey (USGS) topographic maps using WMS. The watershed is superimposed onto a computerized land use/soil map of Minnesota, and the land use/soils for each subsection of the watershed is determined using EPPL7. From the land use/soils and area of the watershed, Visual HEC-1 in conjunction with the Soil Conservation Service (SCS) method are used to predict streamflow values in Otter Creek. Using unit hydrographs produced by Visual HEC-1, the predicted maximum streamflow value for a 25-year rainfall event or 4.5 inches over 24 hours is approximately 3500 cubic feet per second.

H29 Effect on Jump Height Determination After Filtering Force Platform Data

Scott McMillan

Faculty Sponsor: David Bacharach

Department: HPERSS

The purpose of the study was to assess the effects of filtering and sampling rate on the precision of jump height determination. One jump was performed on a strain-gauge based force plate. The unfiltered vertical force was sampled at 5000Hz. Jump height was then calculated by integrating the vertical force from start to takeoff. The point of takeoff was detected when the force dropped below the maximum force value read by the plate while the jumper was airborne. The ground reaction forces were then digitally filtered using cutoff frequencies ranging from 20Hz to 2500Hz with a fourth order recursive Butterworth filter. The data were then computationally reduced to sampling frequencies of 1000Hz and 500Hz. The same digital filtering was done. The Butterworth filter caused an underestimation in jump height of 0.16%, 0.47%, 0.60%, 1.01% and 2.71% with cutoff frequencies of 1300Hz, 200Hz, 75Hz, 30Hz and 20Hz, respectively. With a sampling frequency of 1000Hz the underestimation of jump height was 0.78%, 1.48%, and 2.87% with cutoff frequencies of 1300Hz, 40Hz and 20Hz. A 500Hz sampling frequency caused an underestimation of 1.48% and 2.87% at cutoff frequencies of 1300Hz and 30Hz. Filtering causes an underestimation in jump height by increasing the forces at takeoff, thereby lengthening the time of integration. To minimize this error (keep it under 1%), the following recommendations are suggested: 1. Use a cutoff frequency above 75Hz and a sampling frequency greater than 5000Hz, or, 2. Use a cutoff frequency above 1300Hz and a sampling frequency of greater than 1000Hz.

H30 A Comparative Investigation of Hydrogeological Functions of Restored Wetlands

Todd Griffrow

Faculty Sponsor: Jean Hoff

Department: ESCI

Prairie potholes are seasonal to permanent wetlands found in the depressions formed by glacial activity in the prairie region of the northern United States and southern Canada. Ground-water recharge and discharge, and basin water storage are natural wetland functions. The area of study is on the farmstead of Mr. Dave Jacobson where wetlands were effluenced for agriculture in the 1950s. Thirty wetlands have been restored over a period of 4 years and native prairie grasses replanted on the watersheds. Eight wetlands were chosen based on relative elevation within the local ground-water flow regime and on the ages of restoration. Natural wetland functions were compared for wetlands of differing age to investigate the reestablishment of these functions in restored wetlands. Prairie potholes receive water from precipitation directly into the pothole, surface runoff, spring-melt runoff, and ground-water seepage. Water is depleted by evaporation, transpiration from aquatic plants, and ground-water outflow. A water budget was constructed for the wetlands in this study; ground water is the

unknown factor in the budgets. Wetland watersheds were mapped. These maps and climatological data was used to construct the water budget.

H31 Investigative Study of Vegetative Succession of Restored Wetlands

Nicola Blake-Bradley

Faculty Sponsor: Jean Hoff

Department: ESCI

Abstract not available

H32 Susceptibility of Ground Water to Water-Borne Contamination

Reuben Heine

Faculty Sponsor: Jean Hoff

Department: ESCI

This map is the result of a semester long project that was presented for a digital cartography course, an Introduction to GIS techniques course, and to the Stearns County Soil and Water Conservation District. I was inspired to tackle this project after searching our on-line library. I located a model to relate spatial hydrogeologic variables to produce a map displaying the ground water's sensitivity to water-borne contamination. I have chosen to apply this model to Stearns County Minnesota for two reasons. 1) St Cloud is located in Stearns County which is growing at an accelerated rate; important land use decisions are currently being made for the county without any such map, 2) there exists multiple digital layers of information for the county. Three of the necessary layers are available digitally following a County Geologic Survey which was completed in 1995. Other layers include a digital soils map (completed by students at St Cloud State University based on the County Soils Survey) and a seasonal high water table. A GIS was used to organize the five data layer ensuring matching projections. The GIS converted the polygon data layers into grids of equal cell size. The GIS was then used to weight the variables. The weighting was accomplished by multiplying each layer to a multiplier derived from the depth to bedrock layer. The resulting layers were then summed to produce the final composite index map.

H33 Home Automation System

Joel Artmann, Aaron Pugh, Eric Mjolhus

Faculty Sponsor: Sura Lekhakul

Department: EE

The home automation system that we are designing consists of three main elements: a temperature control unit, a tuner lighting control unit, and a security system unit. These three units will be combined into one data processing unit that can be accessed by the home PC, or remotely. The PC will be able to monitor and change settings on any of the three units by communicating with the data processing unit. The software

implementation includes a program written for Windows, which will interface with the data processing unit via RS-232 serial communications. The heart of the data processing unit is a PIC microcontroller. This PIC controls all operations of the three components. The PIC can be programmed with assembly language or C. We chose C to program with because of simplicity.

H34 DSP - Based Servo Motor Controller

Lance Iverson, Shaarma Mabin, Dustin Steffenson

Faculty Sponsor: Peter George

Department: EE

In the past few decades, businesses have become increasingly competitive with one another. This increase in competition has brought about a need for more efficient production, ultimately bringing automation into factories to raise productivity and the quality of the products being manufactured. Automation includes the motion control, Electrical, Computer, and Mechanical Engineering where most commonly an electrical system is used to control a mechanical system. In order to begin to gain knowledge about motion control, it is necessary to know a control system. A control system consists of a controller and a controlled plant. The controller sends the signals to the plant the plant responds to the signals; the plant may or may not provide feedback to the controller. A controller most often makes use of a microprocessor, microcontroller or a digital signal processor (DSP) in order to implement algorithms. The control system consists of a DSP-based control card and servomotor. DSP was chosen for the controller because of superior computing speed and for its suitability in controlling fast dynamic systems. The control chip is Analog Devices ADMC300 which is a DSP-based motion control chip. The chip contains motion control peripherals such as a pulse width modulation (PWM) generator, an analog to digital converter (ADC) and an encoder interface to receive velocity feedback from the sensor on the servomotor. The user will be able to interact with the system using a computer which will communicate with the control card through an RS232 serial link. The first semester goal is to construct the hardware. This will include building the controller, connecting it to the amplifier and motor, and also connecting the feedback circuit. The second semester will involve writing DSP-assembly code and implementing the serial link between the controller board and the PC.

H35 Cultural Differences Between Japan and the U.S.: The ESL Japanese Cultural Experience

Erina Tateyama, Brett Chesness, Naeko Naganuma

Faculty Sponsor: James H. Robinson

Department: ENGL

This report deals with some of the problems a Japanese student may experience when answering questions in an American classroom. We suggest that two cultural aspects underlay many of these troubles. First, in Japanese culture there are two beliefs, Honne

and Tatemae. These terms deal with the process of giving a polite answer versus telling the whole truth. Second, the problems caused by these beliefs worsen when coupled with the asking of tag questions or when asked questions with a negation present. We believe that more knowledge on part of the student and teacher can help to ease the Japanese student in to an American university setting. When Japanese students and American teachers understand how questions may be asked and how and what to reply to during questioning, the classroom learning can become more productive for both groups. We feel that when both teachers and students use this knowledge a much more positive experience is the result because the degree of cultural misunderstanding is decreased.

H36 A Comparison of Two Q-Sort Attachment Measures in a Group of Family Literacy Parents & Their Children

Jenelle S. Peters

Faculty Sponsor: Glen Palm

Department: CFS

The purpose of this study was to test the efficacy of the Attachment Q-Sort (AQS) and the Maternal Behavior Q-Sort (MBQS) in determining the attachment security of the children and the level of maternal sensitivity in mothers in a sample of 10 mothers and their young children in a Family Literacy program. The scores of the AQS and the MBQS were obtained through 3 Family Literacy program staffs' observations and consensus sorts. These scores were used to determine if there was a correlation between the children's attachment security scores and the maternal sensitivity scores. The scores were also compared with the scores of a prototypically secure child and prototypically sensitive mother, in an attempt to determine the difference in security and sensitivity scores of this sample group and what are considered to be optimal scores. Results indicated that for this sample, there was a high positive correlation between the scores of the AQS and the scores of the MBQS. Results further concluded that there was a statistically significant difference in this sample's AQS scores and MBQS scores than the optimal score of the prototypically secure child and sensitive mother.

H37 Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages

Heidi Henning, Erika Novak, Ruth Lovander, Sonee Bergquist, Dolly Sinclear, Sarah Johnson

Faculty Sponsor: Margery Whites

Department: CDIS

Many professionals within speech-language pathology (SLP) enter the field due to various reasons, including job opportunities in a variety of settings and a desire to improve the quality of life for those they serve. Professionals face various challenges throughout the course of their careers. The ability to meet these demands is influenced by the degree to which career development is understood. The aim of this study was to obtain information about the requirements, challenges, and benefits faced during different stages of this career. Speech-language pathologists who are members of the

Minnesota Speech-Language and Hearing (MSHA) were surveyed. The first phase of the study consisted of an interview of practicing speech-language pathologists. The information obtained from Phase I was used to derive Phase 11 questions. Phase 11 included demographic information and questions based on rating scales and rank-order. Sixty-percent of those surveyed responded. Results of the survey indicated that the majority of the individuals felt the benefits outweighed the challenges of their careers. A positive aspect of the study reflected that most of the respondents felt their contributions were crucial to the operations of their place of employment. An even larger number felt their clients recognize the value of their work. In addition, they felt continuing education was critical to meeting the challenges of the work place. This study adds valuable information to aid new graduates in planning their professional careers. By understanding what others have experienced in the field, a clearer picture can be developed for graduates who will become practicing speech-language pathologists. This study may also provide ideas to other disciplines in exploring the area of career planning and development.

H38 Clinician Judgements of Stuttered and Nonstuttered Intervals

Jeff Evans

**Faculty Sponsor: Shelley Brundage
Anne K Cordes**

**Department: CDIS
Univ. of Georgia, Athens**

The definition and measurement of stuttering is problematic. As yet there is no agreed-upon definition or measure of stuttering. Historically stuttering has been measured by counting discreet stuttering events in a person's speech and non-speech behaviors. This method of measurement has proved to be unreliable because stuttering is a continuous event, rather than a categorical one. Time-interval measurement is a relatively new method of measuring stuttering. It involves artificially separating a speech sample into 5-second segments, and making a judgment whether stuttering was present in each sample (yes-no judgment). Inter-judge reliability of student judges and "expert" researchers increases when time interval measurement is used. Speech-language pathologists (SLPs) diagnose and treat persons who stutter. Our study addressed the reliability of identifying stuttering when SLPs served as judges. Thirty-one SLPs viewed videotaped samples of stuttered and nonstuttered speech on two occasions. These SLPs also completed questionnaires rating their knowledge about stuttering and their comfort level in working with persons who stutter. Intra- and inter-judge reliability scores were calculated. Correlations between intra-judge reliability and comfort and knowledge about stuttering were calculated. The clinical implications of our findings will be discussed.

H39 Reduction of Chronic Compulsive Clothes Changing

Kari Rudek

Faculty Sponsor: Eric Rudrud

Department: APSY

In a residential setting compulsive clothes changing can be very disturbing for staff, visitors, and the person who is doing it themselves. This study was done to eliminate clothes changing in a woman living in a group home setting. An AB treatment plan with follow up was used in this attempt. During baseline this behavior was recorded for 23 days with a total of 43 behaviors recorded averaging 1.87 changes a day. Data collected during treatment of 31 days shows 20 observed behaviors with an average of 1.55 changes. During follow up of 28 days there were no recorded behaviors giving an average of zero changes a day. This shows that an AB treatment plan can be used to eliminate clothes changing behavior of an extremely mentally retarded woman.

H40 College Women's Precautionary Behavior for Acquaintance Rape

Amy Johnson

Faculty Sponsor: Zoa Rockenstein

Department: PSYC

Women's precautionary behavior for stranger rape may not protect them from acquaintance rape. Most women may not know how to protect themselves from acquaintance rape, or have few ways to protect themselves. Acquaintance rape is more common than stranger rape. Stranger rape is more feared than acquaintance rape. This is because of the feeling of lack of control over the unknown. This fear causes a desire for more information about how to protect against stranger rape. Acquaintance rape is more common, but may be talked about less. Acquaintance rape may have fewer known precautionary behaviors. Women may also feel they have more control over acquaintance rape. The goals of this project were: 1) to find out how much college women know about the different types of rape, 2) to discover what precautionary behaviors they practice to protect themselves, and 3) another goal is to see what type of rape they hear the most about.

H41 Gender in Resume Screening

Ryan Brisk

Faculty Sponsor: Marlene Devoe & Wendy Department: PSYC

A survey of St. Cloud State students was conducted to determine if differences existed between declared Human Relations/Multicultural Education minors and declared business related majors (General Business, Marketing, Management, and International Business) in the selection of the best applicant for a position from a packet of three resumes. The survey also determined if there were differences between men and women in the selection of the best applicant for a position. Participants received a packet containing a gender-specific male name, a gender-specific female name, and a gender-ambiguous name. In each of the packets there was one highly qualified resume and two equally less qualified resumes. Half of the participants received a packet with

the gender-specific male name having the highly qualified resume and the other half of the participants received a packet with the gender-specific female name having the highly qualified resume. This research is modeled after a study done by Foster, Dingman, Muscolino and Jankowski (1996) which compared Business majors and Psychology majors. Foster et al. (1996) found no significant differences between the two majors but did find, although insignificantly, that men and women tend to favor their own gender when making the selection of the best applicant for a position. Because people with any major or minor may find himself or herself evaluating resumes it is important know how a particular major or minor will tend to evaluate resumes.

H42 The Effects of Ingesting Carbohydrate Gel And Liquid Glucose on Blood Glucose and Oxidation Responses During Rest

Aaron Nelson

Faculty Sponsor: John Seifert

Department: HPERSS

The purpose of this study was to compare blood glucose, lactic acid concentrations, and estimated oxidation rates between a CHO gel and a liquid glucose control. After a 12-hour fast, six non-diabetic adult subjects ingested either 50g of a rice syrup/flour gel or 50g glucose in 300ml solution in a crossover, counterbalanced design. Subjects remained stationary while blood samples were obtained using an indwelling catheter at 5, 10, 15, 20, 30, 40, 60, 80, 100, and 120 min. Samples were analyzed for blood glucose (13G) and blood lactate (BL) concentrations. Oxygen uptake and RER were monitored at 5, 10, 15, 20, and 30min and estimated oxidation rates were calculated using the Lusk Table. Subjects reported perceived nausea levels following each blood draw. No significant differences were found in BG or BL between the CHO gel and the control. No significant differences were found in perceived nausea levels or absolute oxidation rates between the CHO gel and the control. Mean relative oxidation rates, however, were greater ($p=.02$) with gel ingestion than with the glucose solution (1.54 kcals/min vs. 1.47 kcals/min). Similar BG responses are observed between the CHO gel and the control glucose solution over a 2-hr period of inactivity. Likewise, no differences existed between treatments for BL, nausea, and estimated absolute oxidation rates. Relative oxidation rates for the first 30-min for rest are greater with the gel than with the glucose solution. This study was funded by a grant from ClifBar.

Author Index

author	paper #	title
Anderson, Jeremy	C1 H43	Synthesis and Characterization of Europium Doped Glass by Sol-Gel Method
Anderson, Sarah Lynn	B2	Re-Exploring Cultivated Life
Arifin, Lily	G4	The Multicultural Classroom: What Happens and What Do Teachers and Students Need
Artmann, Joel	H33	Home Automation System
Asselin, Jason	H5	Rapakivi Granites of St. Cloud
Baker, Paige	H20	Lactate Comparisons in Distance Runners: Training Versus Racing
Banks, Christian	F1 H7	Emergency Vehicle Advanced Warning System
Bechtold, Kevin	C1 H43	Synthesis and Characterization of Europium Doped Glass by Sol-Gel Method
Beckert, Kai-Sven	G2	Contrastive Rhetoric
Bekkala, Gordon	H12	Inoculant Injection Improvement for Casting Process
Bergquist, Sonee	H37	Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages
Blake-Bradley, Nicola	H31	Investigative Study of Vegetative Succession of Restored Wetlands
Board, Wayne	H24	Daily Volume Change in Below Knee Amputees
Brisk, Ryan	H41	Gender in Resume Screening
Charbonneau, Pam	D4	Lending a Hand in Crisis: Positive Support Offered to Victims of Date Rape by Peers
Chesness, Brett	H35	Cultural Differences Between Japan and the U.S.: The ESL Japanese Cultural Experience
Chupurdia, Kristi	H23	Physiological Comparison of Freestyle and Classic Nordic Skiing in College Women

author	paper #	title
Clarke, Matthew	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Clayton, Jason	E3	PCR Analysis of the Microsatellite Marker Cervid-1 in Minnesota White-Tailed Deer
Cornell, Kelly	H19	Influences of Gender and Power on Perceptions of Mixed-Sex Dyads
Cotton, Bikira	A1	Breaking the Ethnocentrism of Western Medicine: Medical Practices from South Africa
Curtis, Christine	D4	How Race "Colors" the Social Responses to Date Rape Victims
Dalton, Lloyd	F2 H8	A High Resolution Pin - Matrix Computer Display for the Blind and Visually Impaired
Degelman, Frank	H9	A CCD Imaging Archive of Comet Giacobini-Zinner
Degelman, Frank	H10	Galaxy Morphology
Degner, Brenda	H19	Influences of Gender and Power on Perceptions of Mixed-Sex Dyads
Degraw, Chris	H15	CO2-TEA Laser Workstation
Dusheck, Nathan	E1	Concurrent Product and Process Design
Dvorak, Michael J.	H3	The Traveling Salesman Delivers the Mail at SCSU
Eberlein, Jean	B3	Feeding the Gifted Mind: Gifted Women Advocating for One Another
Eersland-Beckert, Jennifer	G3	Learner Styles and Foreign Language Learning
Eggert, Joel	H15	CO2-TEA Laser Workstation
Evans, Jeff	H38	Clinician Judgements of Stuttered and Nonstuttered Intervals
Exsted, Robin	F3	The Road Less Traveled: Elderly Skills for Travel Adaptations Pertaining to Low Visual Blindness
Faiz, Sultan	F2 H8	A High Resolution Pin - Matrix Computer Display for the Blind and Visually Impaired
Faundeen, Tonya	H16	Peer Support and Safer Sex Decisions of Lesbian- Gay-Bisexual Youth

author	paper #	title
Fenstad, Eric	H22	On and Off Ice Performance Testing of NCAA Division I Women Ice Hockey Players
Ferlet, Virginia	G4	The Multicultural Classroom: What Happens and What Do Teachers and Students Need
Fox, Angela	A3	Explorations
Gertken, Jeffery	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Gibbons, Dana	D4	The Socio-Cultural Context of Blame: An Examination of Peer Evaluations of Date Rape Victims
Griffrow, Todd	H30	A Comparative Investigation of Hydrogeological Functions of Restored Wetlands
Grossman, Christine	A4	Mrs. Robinson's Colonial Empire of One
Halvorson, Jackie	D4	The Socio-Cultural Context of Blame: An Examination of Peer Evaluations of Date Rape Victims
Hammerback, Jason	H14	Design Sequence of Automated Machinery
Hanson, Mike	E2 H6	Single Line Multi-User Telephone System
Heine, Reuben	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Heine, Reuben	H32	Susceptibility of Ground Water to Water-Borne Contamination
Henning, Brian	H9	A CCD Imaging Archive of Comet Giacobini-Zinner
Henning, Heidi	H37	Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages
Henry, Jeff	H2	The Split Ram Process
Holmes, Keli	H21	Comparison of Peak Kicking Force Between Position and Leg Of Women Soccer Players

author	paper #	title
Homich, April	C3	Correlations Between CO and HCN Production Rates and Absolute Visual Magnitudes of Comet Hale-Bopp
Homich, April	H9	A CCD Imaging Archive of Comet Giacobini-Zinner
Hooper, Daniel	C2	Near Ultraviolet Spectroscopy of Interstellar Oxygen
Horsmann, Christopher	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Hostetler, Ryan	D4	How Race "Colors" the Social Responses to Date Rape Victims
Ingmire, Deb	D4	The Cost of Caring: The Impact of Supporting Women Who Experience Rape
Iverson, Lance	H34	DSP - Based Servo Motor Controller
Jaszczak, Daniel	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Jelinek, Melissa	D4	What It Takes to Be Labeled 'Rape': Peer Definitions of Women's Experiences With Date Rape
Johnson, Amy	H40	College Women's Precautionary Behavior for Acquaintance Rape
Johnson, Bart	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Johnson, Eric	D4	Does Gender Matter When Supporting Rape Victims?
Johnson, Jared	H12	Inoculant Injection Improvement for Casting Process
Johnson, Lezlee	B3	Feeding the Gifted Mind: Gifted Women Advocating for One Another
Johnson, Sarah	H37	Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages
Johnston, Ashley	D4	How Race "Colors" the Social Responses to Date Rape Victims

author	paper #	title
Kedrowski, John	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Kingston, Kay	D4	The Socio-Cultural Context of Blame: An Examination of Peer Evaluations of Date Rape Victims
Kodet, Amy	D4	Lending a Hand in Crisis: Positive Support Offered to Victims of Date Rape by Peers
Korte, Lori	H19	Influences of Gender and Power on Perceptions of Mixed-Sex Dyads
Kraker, Shanalea	H13	Women in History
Kuebelbeck, Kristy	B3	Feeding the Gifted Mind: Gifted Women Advocating for One Another
Launier, Eugene S.	A2	Clear the Way for the Rage: Representation of Signification in Rap and the Cultural Taboo of Racial Crossover
Lawrence, Anne	G4	The Multicultural Classroom: What Happens and What Do Teachers and Students Need
Lindholm, Kristin	E2 H6	Single Line Multi-User Telephone System
Lovander, Ruth	H37	Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages
Ludtke, Mollee	H20	Lactate Comparisons in Distance Runners: Training Versus Racing
Lyon, Melissa	D4	The Social Control of Women: Advising Victims of Date Rape to Alter Their Lives to Avoid Future Assaults
Mabin, Shaarma	H34	DSP - Based Servo Motor Controller
Macheel, Chad	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition

author	paper #	title
Mair-Hansen, Marjorie	B1	The Impact of Faith-Community Affiliations on Older Women's Lives
Maki, Melissa	D4	The Cost of Caring: The Impact of Supporting Women Who Experience Rape
Malling, Ann	D4	The Social Control of Women: Advising Victims of Date Rape to Alter Their Lives to Avoid Future Assaults
Massie, Jamiee	D4	What It Takes to Be Labeled 'Rape': Peer Definitions of Women's Experiences With Date Rape
Mayer, Deb	D4	The Cost of Caring: The Impact of Supporting Women Who Experience Rape
McDowell, Tami Lou	F4	Gender Differences in Autistic Children
McMillan, Scott	H29	Effect on Jump Height Determination After Filtering Force Platform Data
McMillan, Scott	H22	On and Off Ice Performance Testing of NCAA Division I Women Ice Hockey Players
McQuay, Jeremiah	D4	What It Takes to Be Labeled 'Rape': Peer Definitions of Women's Experiences With Date Rape
Millard, Brian	H27	Field Study of Reformatory Granite, College Quarries
Mjolhus, Eric	H33	Home Automation System
Moen, Nita	D4	Lending a Hand in Crisis: Positive Support Offered to Victims of Date Rape by Peers
Moore, Nikki	H17	The Effect of a Diversity Workshop on Multi-Cultural Attitudes Towards SCSU
Moore, Nikki	H18	Illustrating the Developmental Stages of Life: A Personal Perspective on Physical, Cognitive, and Psychosocial Development

author	paper #	title
Mrozek, Jason	H19	Influences of Gender and Power on Perceptions of Mixed-Sex Dyads
Mrozek, Jason	H17	The Effect of a Diversity Workshop on Multi-Cultural Attitudes Towards SCSU
Nadeem, Rashid	F1 H7	Emergency Vehicle Advanced Warning System
Naganuma, Naeko	H35	Cultural Differences Between Japan and the U.S.: The ESL Japanese Cultural Experience
Nelson, Aaron	H42	The Effects of Ingesting Carbohydrate Gel And Liquid Glucose on Blood Glucose and Oxidation Responses During Rest
Neubert, Jeremiah	H2	The Split Ram Process
Njora, Nicholas	D1	Rape & Violence Against Women
Nordgaard, Curt	H17	The Effect of a Diversity Workshop on Multi-Cultural Attitudes Towards SCSU
Novak, Erika	H37	Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages
Omann, Shawn	H14	Design Sequence of Automated Machinery
Parent, Matt	D4	The Socio-Cultural Context of Blame: An Examination of Peer Evaluations of Date Rape Victims
Petagno, Christine	B4	Disney Women: Who to Love, Who to Hate
Peters, Jenelle S.	H36	A Comparison of Two Q-Sort Attachment Measures in a Group of Family Literacy Parents & Their Children
Pierson, Troy	C4	Durability of Elastomeric Polyurethane
Piontek, Chris	H12	Inoculant Injection Improvement for Casting Process
Pipp, Jennette	H25	Using Linear Regression to Predict Maximum Temperatures from 1000-850 mb Thickness
Pugh, Aaron	H33	Home Automation System

author	paper #	title
Rasmussen, Michael	H4	Design and function of Computer Enhanced Monark Exercise Bike
Reed, Sarah	H9	A CCD Imaging Archive of Comet Giacobini-Zinner
Reed, Sarah	C3	Correlations Between CO and HCN Production Rates and Absolute Visual Magnitudes of Comet Hale-Bopp
Reineccius, Greg	E1	Concurrent Product and Process Design
Roach, Greg	D4	Lending a Hand in Crisis: Positive Support Offered to Victims of Date Rape by Peers
Rodel, Mark	G1	Supplemental Instruction via the Internet
Roth, Karin	D4	How Race "Colors" the Social Responses to Date Rape Victims
Rudek, Kari	H39	Reduction of Chronic Compulsive Clothes Changing
Sainju, Rabindra	F2	A High Resolution Pin - Matrix Computer Display for the Blind and Visually Impaired
Saksvig, Pete	D4	The Social Control of Women: Advising Victims of Date Rape to Alter Their Lives to Avoid Future Assaults
Samuelson, Renee	E4	Determination of Rat Transamidinase Gene Structure Using PCRq
Schanon, Sara	D4	The Social Control of Women: Advising Victims of Date Rape to Alter Their Lives to Avoid Future Assaults
Schilling, Derek	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Schneider, Michelle	D4	Does Gender Matter When Supporting Rape Victims?
Schriever, Chris	G1	Supplemental Instruction via the Internet
Schwinghammer, Chris	D4	The Cost of Caring: The Impact of Supporting Women Who Experience Rape

author	paper #	title
Sincclair, Dolly	H37	Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages
Smith, Betsy	D4	Does Gender Matter When Supporting Rape Victims?
Spears, Jenny	H13	Women in History
Spinar, Mike	H9	A CCD Imaging Archive of Comet Giacobini-Zinner
Sprague, Kendra	H28	A Hydrological Study of Otter Creek
Steffenson, Dustin	H34	DSP - Based Servo Motor Controller
Strand, Jason	H26	Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition
Tateyama, Erina	H35	Cultural Differences Between Japan and the U.S.: The ESL Japanese Cultural Experience
Tollison, Andrea	H1	Optical Properties of Samarium Doped Fluorophosphate Glass
Welken, Sarah	H11	Date Rape
Weyer, Aaron	E2	Single Line Multi-User Telephone System
	H6	
Williquett, Danielle	D4	What It Takes to Be Labeled 'Rape': Peer Definitions of Women's Experiences With Date Rape
Xiong, Pao	F1	Emergency Vehicle Advanced Warning System
	H7	
Zilka, Jean	H9	A CCD Imaging Archive of Comet Giacobini-Zinner
Zilka, Jean	C3	Correlations Between CO and HCN Production Rates and Absolute Visual Magnitudes of Comet Hale-Bopp

Sponsor Index

department	paper	title
Academic Learning Center		
Gretchen Starks-Martin	G1	Supplemental Instruction via the Internet
APSY		
Eric Rudrud	H39	Reduction of Chronic Compulsive Clothes Changing
ART		
Theodore Sherarts	B2	Re-Exploring Cultivated Life
BIO		
Denise McGuire	E3	PCR Analysis of the Microsatellite Marker Cervid-1 in Minnesota White-Tailed Deer
	E4	Determination of Rat Transamidinase Gene Structure Using PCRq
CCS		
Phyllis Greenberg	B1	The Impact of Faith-Community Affiliations on Older Women's Lives
CDIS		
Shelley Brundage Anne K. Cordes	H38	Clinician Judgements of Stuttered and Nonstuttered Intervals
Margery Whites	H37	Career Planning and Development: Perceptions of Speech-Language Pathologists in Various Career Stages
CFS		
Glen Palm	H36	A Comparison of Two Q-Sort Attachment Measures in a Group of Family Literacy Parents & Their Children
CHEM		
Donald Neu	C1	Synthesis and Characterization of Europium Doped Glass by Sol-Gel Method

department	paper	title
ED		
Lalita Subrahmanyam	A1	Breaking the Ethnocentrism of Western Medicine: Medical Practices from South Africa
EE		
Bruce Ellis	E2 H6	Single Line Multi-User Telephone System
Peter George	H34	DSP - Based Servo Motor Controller
J. Michael Heneghan	F1 H7	Emergency Vehicle Advanced Warning System
Sura Lekhakul	H33	Home Automation System
Aswartha Narayana	F2 H8	A High Resolution Pin - Matrix Computer Display for the Blind and Visually Impaired
ENGL		
Sidney Parham	A2 A4	Clear the Way for the Rage: Representation of Signification in Rap and the Cultural Taboo of Racial Crossover Mrs. Robinson's Colonial Empire of One
James H. Robinson	H35 G4	Cultural Differences Between Japan and the U.S.: The ESL Japanese Cultural Experience The Multicultural Classroom: What Happens and What Do Teachers and Students Need
Marya Teutsch-Dwyer	G3	Learner Styles and Foreign Language Learning
ESCI		
Jean Hoff	H5 H26	Rapakivi Granites of St. Cloud Field Study of Reformatory and St. Cloud Granites, Quarry Park Addition

department	paper	title
ESCI		
Jean Hoff	H27	Field Study of Reformatory Granite, College Quarries
	H30	A Comparative Investigation of Hydrogeological Functions of Restored Wetlands
	H31	Investigative Study of Vegetative Succession of Restored Wetlands
	H32	Susceptibility of Ground Water to Water-Borne Contamination
Gregory Nastrom	H25	Using Linear Regression to Predict Maximum Temperatures from 1000-850 mb Thickness
Charles Nelson	H28	A Hydrological Study of Otter Creek
FORL		
Jorn Commers	G2	Contrastive Rhetoric
HPERSS		
John Seifert	H42	The Effects of Ingesting Carbohydrate Gel And Liquid Glucose on Blood Glucose and Oxidation Responses During Rest
	H20	Lactate Comparisons in Distance Runners: Training Versus Racing
	H22	On and Off Ice Performance Testing of NCAA Division I Women Ice Hockey Players
Glenn Street	H21	Comparison of Peak Kicking Force Between Position and Leg Of Women Soccer Players
	H24	Daily Volume Change in Below Knee Amputees
	H4	Design and function of Computer Enhanced Monark Exercise Bike
David Bacharach	H29	Effect on Jump Height Determination After Filtering Force Platform Data
	H23	Physiological Comparison of Freestyle and Classic Nordic Skiing in College Women

department	paper	title
MATH		
Dale R. Buske	H3	The Traveling Salesman Delivers the Mail at SCSU
MfgE		
Youpeng Zong	H2	The Split Ram Process
Warren Yu	H14	Design Sequence of Automated Machinery
Steven Covey	C4 E1	Durability of Elastomeric Polyurethane Concurrent Product and Process Design
Andrew Bekkala	H12 H15	Inoculant Injection Improvement for Casting Process CO2-TEA Laser Workstation
MUS		
Scott Miller	A3	Explorations
PAES		
Richard Brundage	H1	Optical Properties of Samarium Doped Fluorophosphate Glass
John Harlander	C2	Near Ultraviolet Spectroscopy of Interstellar Oxygen
Maria Womack	C3 H9 H10	Correlations Between CO and HCN Production Rates and Absolute Visual Magnitudes of Comet Hale-Bopp A CCD Imaging Archive of Comet Giacobini-Zinner Galaxy Morphology

department	paper	title
PSYC		
Wendy Braje	H17	The Effect of a Diversity Workshop on Multi-Cultural Attitudes Towards SCSU
	H41	Gender in Resume Screening
Marlene DeVoe	F3	The Road Less Traveled: Elderly Skills for Travel Adaptations Pertaining to Low Visual Blindness
	H19	Influences of Gender and Power on Perceptions of Mixed-Sex Dyads
	H41	Gender in Resume Screening
	H18	Illustrating the Developmental Stages of Life: A Personal Perspective on Physical, Cognitive, and Psychosocial Development
Zoa Rockenstein	B3	Feeding the Gifted Mind: Gifted Women Advocating for One Another
	B4	Disney Women: Who to Love, Who to Hate
	F4	Gender Differences in Autistic Children
	H40	College Women's Precautionary Behavior for Acquaintance Rape
SOC/ANTH		
Elizabeth Scheel	D2	Does Gender Matter When Supporting Rape Victims?
	D2	How Race "Colors" the Social Responses to Date Rape Victims
	D2	Lending a Hand in Crisis: Positive Support Offered to Victims of Date Rape by Peers
	D2	The Social Control of Women: Advising Victims of Date Rape to Alter Their Lives to Avoid Future Assaults
	D2	The Socio-Cultural Context of Blame: An Examination of Peer Evaluations of Date Rape Victims

department	paper	title
SOC/ANTH		
Elizabeth Scheel	D2	The Cost of Caring: The Impact of Supporting Women Who Experience Rape
	D2	What It Takes to Be Labeled 'Rape': Peer Definitions of Women's Experiences With Date Rape
	H16	Peer Support and Safer Sex Decisions of Lesbian-Gay-Bisexual Youth
WS		
Gerianne Klug	D1	Rape & Violence Against Women
	H11	Date Rape
	H13	Women in History