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Adventures in Research and Scholarship

Undergraduate Student Symposium 2006: Research Abstracts

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Adhesion of Transferrin to FDA Group II Contact Lenses

Viviana Sumi Lee, Shweta Shah, Rafia Chodhry

Division of Math, Science, and Technology
Farquhar College of Arts and Sciences

Faculty Sponsors: **Dr. Edward O. Keith¹ and Dr. Andrea Janoff²**.
Farquhar College of Arts and Sciences¹, and College of Optometry²

Abstract

Approximately 75 million people worldwide use contact lenses for vision correction. Tears contain roughly 60 different proteins that accumulate on the lens, contributing to lens deterioration, and leading to vision problems and ocular pathology. We examined the adhesion of transferrin FDA Group II contact lenses, and compared these results to previous results examining the adhesion of lysozyme, albumin, and transferrin to lenses from the other FDA material groups: Group I - Optima FW disposable lenses (Bausch and Lomb, Inc. Rochester NY, U.S.A.); Group II - Soflens one-day disposables (Bausch and Lomb, Inc.); Group III - PureVision continuous wear disposables (Bausch and Lomb Inc.); and Group IV - AcueVue disposables (Vistakon, Jacksonville, FL, USA). Lenses were incubated in a solution of each protein for 1, 2, 3, and 4 days, and protein adhesion was determined using the bicinchoninic acid assay (Pierce Chemical Co., Rockford, IL, USA). Transferrin adhered to Group II lenses in an increasing asymptotic pattern, where the levels increased each day during the incubation, reaching a maximum after three days of incubation, and then declining slightly on the fourth day. The pattern of transferrin adhesion to these lenses differed from the patterns observed for lysozyme and albumin adhesion to the same lenses. Average transferrin adhesion to Group II lenses was 72 (± 30) ug/lens, as compared to 11 (± 5.5) for lysozyme and 46.5 (± 34) for albumin.

With respect to transferrin adhesion to lenses from FDA Groups I and IV, average transferrin adhesion to Group I lenses was 96 ug/lens (± 10), as compared to 70 (± 13) for lysozyme and 60 (± 24) for albumin. Average transferrin adhesion to Group IV lenses was 116 ug/lens (± 43), as compared to 92 (± 6) for lysozyme and 49 (± 4) for albumin. Transferrin adsorbed to Group I lenses in a steadily increasing pattern, resembling the pattern of albumin but not lysozyme. Transferrin adsorbed significantly to Group IV lenses after one day, and remained elevated resembling the pattern seen with lysozyme and albumin. This variation suggests the need for further studies of the complex interactions between tear proteins and contact lenses.

Supported in part by the Farquhar College of Arts and Sciences, in-house research grants from the Health Professions Division, and by a President's Faculty Scholarship Award.

Alternative Medicine: The Cure for Cancer

Rena Patel

Divison of Math, Science and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Emily Schmitt**

Abstract

For decades, alternative medicine (also known as complementary medicine) has been subjected to much speculation. Many scientists view this area of medicine as unsafe, but this view is primarily due to a lack of proper testing and personal bias. As we venture to find treatments for cancer that are more effective and with fewer related side effects, researchers are turning to herbal products. This literature review focuses on three such herbs, *Withania somnifera* (Indian ginseng), *Convolvulus arvensis* (bindweed), and *Evodiae fructus* (evodiamine) which have been found to be potent in their property of inhibiting the formation of new blood vessels from pre-existing capillaries (angiogenesis). This inhibition of angiogenesis is important in that it is correlated to the metastatic growth of cancer. Not only can herbs be valued for their possible eradication of tumors, but also for their use to decrease side effects associated with the progression of disease. Studies will also be reviewed on L-carnitine and *Serenoa repens* (saw palmetto). L-carnitine (commonly found in red meat) is an important cofactor involved with metabolism and has been shown to decrease cancer-related stress in patients. Additionally, *Serenoa repens* has been demonstrated to improve the quality of life for patients with benign prostatic hyperplasia (BPH).

Attitudes on Alcohol Consumption in Youth Across Ethnic Groups

Dujon Chang

Division of Social and Behavioral Sciences
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Alexandru Cuc**

Abstract

This research examines how people's attitudes toward alcohol consumption vary across ethnic groups. Previous research has clearly demonstrated that patterns of alcohol use are influenced by a group's norms and attitudes regarding alcohol use (Caetano & Clark, 1999). The current study investigates how a group's norms toward alcohol use extend and apply to the use of alcohol by children and adolescents. Participants were given a twenty eight-item questionnaire on various drinking and eating habits in adults, adolescents and children. The participants rated each question on a five point Likert-type scale indicating their agreement or disagreement. Data was collected from 156 participants from five different groups: Hispanic, Caucasian, African-American, Asian, and Caribbean. Preliminary data analysis supports the existence of different group attitudes on alcohol consumption in children and adolescents across ethnic groups.

Because I am not Superwoman!

Kristina Egerborn
Division of Humanities
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Delmarie Martinez**

Abstract

This is a poem that was written about my frustration with all the pressures that are placed upon me as well as other young women who are attending school full-time, working part-time, and taking care of a household.

Cellulitis and Risk Factors for Methicillin-Resistant *Staphylococcus Aureus* (MRSA) in a Collegiate Athlete: A Case Report

Deirdre Foisy

Division of Math, Science, and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Patricia McGinn**

Abstract

Topic: Dermatological condition, presented during pre-season in a collegiate volleyball athlete. The injury manifested into a form of cellulites, with signs of possible Methicillin-resistant *staphylococcus aureus* (MRSA) infection.

Purpose: To present a case study identifying characteristics associated with a potential staphylococcus infection as it relates to a skin lesion.

Friction blisters are common during pre-season athletics, especially during multiple daily practices. The formation of a blister occurs within the upper layers of the epidermis. A space forms between the layers leaving the surface intact and fluid fills the space. Blister formation usually requires thick and immobile epidermis, and forms easily on moist, warm skin. In this case, the athlete presented with a typical friction blister and received standard wound care treatments. However, after weeks of conservative treatment with no resolution, the blister had developed into cellulitis (as diagnosed by a physician). After two months of antibiotic therapy, the cellulitis at the site of the friction blister had not resolved. At this point in the case, MRSA was a concern; however, it is important to note that the presence of MRSA among athletes is rare.

Goal: To demonstrate the importances of proper wound care, and identify the signs of possible MRSA; the occurrence of cellulitis associated with a skin lesion can be an indication of MRSA. The lack of literature regarding MRSA in the athletic population warrants presentation of this information to enhance the awareness of identification of at-risk skin wounds.

Dating Patterns among the Arab Community within South Florida

Marissa S. Dass

Division of Humanities
Farquhar College of Arts and Sciences

Faculty Sponsor: **Jennifer Reem**

Abstract

The purpose of this study was to examine different attitudes, perceptions and values regarding dating among South Florida's Arab community. This research sought to answer such questions as the difference between dating habits of American born Arabs and Middle Eastern born Arabs; how religion and the individuals' devoutness influenced their dating habits; whether culture or religion was more influential on the individuals' dating habits; and the differences between the ways in which Arab men and women dated.

Dating is defined as a social appointment, traditionally with a person of the opposite sex; and as individuals going out together as sexual partners. There were no findings of prior research on this topic with the exception of discussions of rules taken from the Holy Quran. It is important to note that in my study, I focus not on Muslims, but rather on South Florida's Arab community.

In the present study, I utilized surveys and small group discussions. In total, I was able to receive surveys from one hundred and twenty participants, aged 19-32. Survey questions ranged from general demographical questions to more topic specific questions such as their level of devoutness, whether they dated or not, and if not, reasons why- including religious or familial, and whether they are sexually active or not.

Based on survey findings I hypothesized that there is an acute difference between the dating habits of Arab men and Arab women, but that similarities existed between both Arab American men and women and Middle Eastern Arab men; that there is an almost stringent difference in the dating habits between Arab American females and those females who are originally from the Middle East; that although religion does influence some, it seemed evident that culture was a greater influence- or rather the 'host culture' was more influential; and also that the dating habits and views regarding relationships and dating seemed generally uniformed among Arab men from both the US and the Middle East.

Development of an Ultra-light Weight Thin Set for Large Format Porcelain Tiles

Greg McAlpin

Division of Math, Science and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Robert Pomeroy**

Abstract

Mortar is a material used in masonry to fill the gaps between blocks in construction and bind the blocks together. The blocks may be stone, brick, and tile. Mortar is a mixture of sand, a powdered adhesive such as cement, and water and is applied as a paste, which then dries hard. Cement is most commonly used to refer more specifically to powdered materials that develop strong adhesive qualities when combined with water. Pozzolanic ash is an alumino-siliceous material which reacts with calcium hydroxide in the presence of water to form compounds possessing cementitious properties at room temperature, producing $2(\text{CaO}) \cdot \text{SiO}_2 \cdot 0.9\text{-}1.25(\text{H}_2\text{O})$. Pozzolanic substances react with the cement paste, resulting in increased concrete strength. Most pozzolans, with the exception of fly ash, result in high early strength in concrete, but reduced workability and high heat of hydration. This necessitates the use of superplasticizer and chilled water when mixing such admixtures into concrete. This study describes the use of lower density materials in the mortar mixture combined with critical adjustments of polymers, plasticizers and thickening agents to achieve a reduction of 30% in the over all weight of the product while maintaining the same surface coverage with increased adhesion, open time and workability.

**Effects of Social Cognition on Children with Language Impairment and
Connections for Classroom Practice to Address No Child Left Behind**

Arlisha Canion and Stacey Gonzalez
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Fischler School of Education and Human Services

Faculty Sponsor: **Dr. Patrice LeBlanc**

Abstract

Language impairment is a communication disorder in which children experience difficulty in the ability to understand and/or use words in context. Children with language impairments are not able to relate to others receptively or expressively, thereby creating an affect on the children's development of social cognition. Social cognition refers to children's perception and interpretation of the world around them. For children with language impairments, the inability to relate to others in the world around them both verbally and nonverbally facilitates a breakdown of language development and social communication. Therefore, children with language impairments require the use of best practices in the classroom in order to meet the standards of No Child Left Behind.

**Erikson's Model of Psychosocial Development with Autistic Children and
Connections to Effective Educational Practices for No Child Left Behind**

Lauren M. Stephens & Melissa Dieppa
Department of Undergraduate Education
Fischler School of Education and Human Services

Faculty Sponsor: **Dr. Patrice LeBlanc**

Abstract

Autism is a disorder that affects an individual's ability to communicate and socialize. Social difficulties of autism involve interpreting human emotions and reciprocity skills that are necessary for communication. To better understand why social development for autistic children is critical, it is beneficial to look at Erik Erikson's model of psychosocial development. Erikson's model explains the importance of peer relationships in order for the adolescent to find his/her identity. Autistic children struggle with peer relationships due to the social difficulties of the disorder. If autistic adolescents are not taught the social skills that are necessary for an autonomous life, they may experience role confusion which leads to isolation in the future. Additionally, Autistic children who are included in the regular classroom may be held to the standards of No Child Left Behind. In order to help autistic adolescents be successful, evidence-based practices and "best practices" for social development are recommended.

Exposing the Repressed

Gregory Kyriakakis
Division of Humanities
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Suzanne Ferriss**

Abstract

This paper presents a psychoanalytic interpretation of Chuck Palahniuk's novel *Fight Club*. Psychoanalysts such as Sigmund Freud posited that an "other" resides inside the mind of each individual, revealing itself only in specific instances. The unnamed narrator, tired of his mundane life, allows his id to take control of his body under certain circumstances so that he can satisfy repressed urges. Primarily, he enters into an intimate relationship that his conscious self – influenced by society's norms - would deem inappropriate. Freud's Oedipus Complex is addressed as it applies to the narrator's relationship with Marla Singer, a drain on society. By becoming Tyler Durden, a representation of his father, the narrator seeks a relationship with Marla that he describes as resembling that of his own parents. Through his schizophrenia, the narrator periodically assumes the identity of Tyler, a father figure who leads underground fight clubs which allow its members to reject society's behavioral expectations and expose their unconscious urges. While becoming the leader for this generation experiencing mundane lives, Tyler combats what he views as potential paternal authority, such as his boss, and deals with his fatherly abandonment by unleashing his repressed, unrestricted, and violent "other."

Fail One Test, Fail for the Year: Florida Education and the FCAT

Michael Bergbauer

Division of Humanities

Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Suzanne Ferriss**

Abstract

Imagine working hard all school year and managing decent *A* and *B* grades. Imagine, too, that failing a single test nullifies all that hard work and results in grade retention. This experience happens to hundreds of students each year and the test they fail is the FCAT. Relying on test scores to make critical educational decisions about students or schools, otherwise known as high-stakes testing, has become commonplace in Florida education. So much so, that curriculum become dedicated to one objective - pass the state test. However, the FCAT should not be used to determine promotion and retention in grade levels because it limits the curriculum, is prone to error and shortchanges the future of young students. By examining the statistics and effects of high-stakes testing, this story makes the determination that instead of improving Florida education, the FCAT does the opposite by eliminating curriculum and holding children's future back years at a time.

**Induction of Apoptosis by Resveratrol in Cancer Cells
During Combination Treatment with Nutlin-3 and TGF- β**

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Madhusudhanan Narasimhan‡**

Farquhar College of Arts and Sciences

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College of Pharmacy

Faculty Sponsor: **Dr. Appu Rathinavelu**

Abstract

Resveratrol (3, 4', 5-trihydroxy-trans-stilbene) is a naturally occurring compound found mainly in the skins of grapes and various other fruits and nuts. Resveratrol (RV) has been previously studied and found to work through various mechanisms and produce anti-inflammatory, antiviral and anticancer effects (1,2,3). Previous studies have shown that RV promotes p53-dependent apoptosis via a Ras-MAPK signal transduction pathway by increasing the phosphorylation of serine residues on p53 (4). In the current study we have investigated the induction of apoptosis by RV in A2780/CP-70 cells in combination with Nutlin-3 and TGF- β . The combination treatments with Nutlin-3 and TGF- β were used to enhance RV induced apoptosis in A2780/CP-70 cells through synergistic mechanisms.

It Takes True Grit to Challenge Gender Stereotypes

Deborah Z. Greenbaum

Division of Humanities
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr Suzanne Ferriss**

Abstract

This paper evaluates the film *True Grit* as representative of Westerns that challenge traditional gender roles. The argument is made that Westerns have been unduly dismissed by gender theorists for being monolithic affirmations of traditional masculine hegemony. *True Grit*, a film from 1969, shows that unorthodox gender portrayals are not a new concept. Focus is placed on analyzing the female character, Mattie Ross. Mattie is revealed to debunk the traditional female role through her appearance, interests, personality traits and behavior. Mattie flouts Laura Mulvey's assertion that women are in film to pander to the "male gaze" by exhibiting a quality she calls "to-be-looked-at-ness." Setting, plot, and staging of scenes are also reviewed with an eye toward how they challenge traditional portrayals of women in film. The interplay between Mattie and the male characters serves to illustrate Michel Foucault's model of power as something "fluid." Ultimately, a little scrutiny of *True Grit* belies the dismissal of Westerns by gender theorists, and reveals their untenable and hypocritical position of gender role exclusion when perceived as traditional.

Life

Sharifa Coombs

Division of Humanities
Farquhar College of Arts and Sciences

Faculty Sponsor: **Jennifer Reem**

Abstract

My poem *Life* is about the questions that are constantly posed by people of all kinds. One thing that can be counted on or expected is the unpredictability of life, but scientist and theorists are always attempting to come up with predictions for what the future will be. Basically, this poem examines different aspects of human nature and the different expectations placed on us by society. For example the meaning of “success,” society deemed it to mean wealth and sometimes fame. In reality the meaning of success is different for everyone, and sometimes the meaning of success given by society comes at a higher price. This poem simply examines human nature and the way it questions things in life, and the fact that humans can be selfish, and have individualistic attitudes. Most of the time people are okay with their actions because they feel justified, however, it doesn’t always mean the other person is not hurt by it. But, because we are so individualistic and are not the receivers of the treatment, often times we do not care. This is sad because at some point in our lives we can all be susceptible to cruelty of others. We should have consideration for their feelings because one never knows how others are affected. One person may forget about what is said, and another could hold on to it for the rest of their life. I ended the poem with the reminder that every person that we come in contact with or talk about is a person, and could be just like us.

Lifetime of Love

Erica Wallace

Division of Social and Behavioral Sciences
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Delmarie Martinez**

Abstract

This poem was written to express something that I rebel against in today's society. I chose divorce because it is something that people overly turn to and is something I hope never to utilize.

**Media Images, Self-Reconstructions, and Young American Women's
Quest For Perfection**

Danielle Garcia

Division of Humanities
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Kate Waites**

Abstract

The late 20th and early 21st centuries produced a new variety of female adolescent who was reared on a heavy diet of popular images, especially through consumer magazines and television programming. Now entering into adulthood, these young women continue to negotiate their self-identity within the context of cultural apparatuses that instruct them in everything from life-style choices to the ideal body image. According to the National Institute on Media and the Family, some fifty-three percent of thirteen year-old girls are unhappy with their physical appearance, and by age seventeen, body dissatisfaction in this population escalates to seventy-eight percent (*The Body Project* xxiv). This phenomenon should be no surprise given the media's insistence on portraying only one body ideal for females, one that is exceptionally thin and flawlessly beautiful. This statistic also displays young women's obsession with their physical appearance at the expense of other key aspects of personal identity, such as their personality and intellect. This paper seeks to examine popular media texts—fashion magazines and trendy television shows—to explore the relationship between the popular culture images seen in the media and the personal identity and body image of young American women. By using qualitative analysis and drawing on cultural theorist Anthony Giddens' concepts concerning the "self-reflexive project," this study proposes to explore this ultra-thin and flawless body image, as reified in popular culture, and what it reveals about the connection between the identity formation of young American women and the growing trend toward adopting extreme measures in order to reconstruct their bodies and achieve perfection. This iconic image is clearly illustrated in contemporary magazines and popular television programs targeted specifically to women.

Partial financial support was provided through the Farquhar College of Arts and Sciences Undergraduate Honors Program.

**Meeting the Expectations of No Child Left Behind:
The Long-Term Effects of Head Start**

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Department of Undergraduate Education
Fischler School of Education and Human Services

Faculty Sponsor: **Dr. Patrice LeBlanc**

Abstract

What are the long-term effects of Head Start education on students' cognitive development? What is head Start? How do long-term effects of Head Start connect to cognitive development? How are students, teachers, and parents affected by NCLB? How are meeting the expectations of NCLB correlated with Head Stat Programs? These are the questions being addressed in this paper. This paper consists of a review of the literature on these topics and concludes that Head Start prepares disadvantaged children for school. They have lower crime rates, better grades, and get better paying jobs than their fellow peers who did not attend Head Start. The paper concludes with recommendations for classroom practice related to NCLB.

Modification of 100% Solids Epoxy Grout with Ancamine K-54 to Decrease the Set Time

**Stacey Gunberg, Itza Miranda, Luciana Rozas, Sara Westcarth,
and Pricilla Williams**

Division of Math, Science and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Robert S Pomeroy**

100% solids epoxy grouts ideally should be water cleanable, three components, mortar and grout system designed for setting and grouting vitreous, semi-vitreous or absorptive tile: ceramic, mosaic, quarry, cement, Impervious porcelain and glass tile, brick and mini-brick, precast terrazzo, natural stone tile over a wide variety of substrates. This product yields exceptionally high strength, and it offers maximum resistance to staining and chemical attack from food, beverages, chemicals and cleaning agents. The product should also be uniform in color and colorfast. One of the most common applications of 100% solids epoxy grout is in the restaurant industry. Antibacterial agents in the grout combined with its resistance to harsh cleaning chemicals make it an idea fit. This study describes the modification to the commercially available grout formulation necessary to increase the rate at which the epoxy grout sets up. The design goal for this particular application is to be set and tact free within 6 hours. A normal set times is 24 hours. To accelerate the set, Ancamine K-54, mixture of tris-2,4,6-(dimethylaminomethyl) Phenol and bis (dimethylamino) phenol was added. This study describes the factors affecting setting rates and the level of K-54 required to achieve setting in 6 hours.

Opportunity Costs of the Iraq War

Stephanie Quinones, Jahmila Williams, Fatima Nassriyeh, Quratulain Hayat
School of Business
H. Wayne Huizenga School of Business and Entrepreneurship

Faculty Sponsor: **Dr. Charles Harrington**

Abstract

Five years after the terrorist attacks of 9/11, the United States remains engaged in the conflict with terrorism and its counterparts. The monetary spending on the conflict in Iraq continues to climb. The US administration has instituted a planned budget that will allocate “\$ 442 billion for national defense, which is a defined area of the budget that includes the Department of Defense, nuclear weapons (part of Department of Energy), and a few other military –related areas in other agencies” (National Priorities Project 2). The opportunity costs of the war cannot be ignored. While no one can and has not supported the suppression and harsh regime of Saddam Hussein, it is clear that the reasons for going to war have been suspicious. According to the 9/11 Commission’s final report, Iraq did not take part in the planning or implementation of the September 11 attacks and did not have a “collaborative operational relationship” (American Progress 1). The United States thus faces a serious challenge. The relationship between US intelligence and the policy making process has regressed and is need of improvement. Other wise, the opportunity costs of these and further mistakes will continue to rise.

Organic Farming: Food Production for the Future

Nick Rocco, Hayley Oligane, Elizabeth Bond
Division of Math, Science, and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Dimitrios Giarikos**

Abstract

This research explores the long-term ecological and economical benefits of organic farming, as opposed to conventional farming, in the United States. Both farming methods have distinctive agricultural techniques that are under investigation to better comprehend their effects on the industry, consumer, and environment. Both systems have the potential to be productive only in specific geographic regions. Distinguishing which system should be used will increase prosperity and limit environmental harm. The primary goal of this project is to prove that the United States needs to adopt organic farming alongside conventional systems by providing government subsidies in order to enhance the efficiency of our nation and to improve environmental quality.

Percy Bysshe Shelley: Unmasked Indignation

Deborah Z. Greenbaum

Division of Humanities
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr Suzanne Ferriss**

Abstract

This paper analyzes Percy Bysshe Shelley's unique application of the philosophy and characteristics of the Romantic British poets in his masterpiece, *The Mask of Anarchy*. Shelley's use of language is examined within the context of Wordsworth's definition of a poet as "a man speaking to men" through "a selection of language really used by men." Additionally, Shelley's appeal to the common man, his unusual use of nature as instructive and his manipulation of the imagination are reviewed and compared to the Romantic standard. Shelley's divergence from the Romantics regarding personification and passionate feeling is demonstrated. *The Mask of Anarchy* is revealed as a timeless call to action against injustice as well as a blueprint for passive resistance.

Polygamy: Is having multiple spouses inappropriate?

Leda Castrillo

Division of Social and Behavioral Sciences
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Michael D. Reiter**

Abstract

Polygamy is a general term that means multiple spouses (White & White, 2005). There are two types of polygamy: polygyny, which is one man with many wives, and polyandry, which is one woman with many husbands. Polygamy has been practiced in the United States as well as in other parts of the world for many centuries. When some families decide to add a new wife to their family, the decision is carefully considered and must be approved before the couple can get married (Altman & Ginat, 1996). The effect of polygamy on children has been researched but the effect is still unclear. There are many who believe that polygamy is beneficial because it allows men to have many children and helps society (White & White, 2005). On the other hand, there are also many people who view polygamy as an inappropriate relationship because it oppresses women (Moore-Emmett, 2004). This research project aims to show why polygamy could be deemed an inappropriate relationship. It will classify this type of relationship as either unconventional, disapproved or forbidden.

Priceless Passage

Amy Harvey

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Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Mark Duncan**

Abstract

Written by Amy Harvey in 1993, the poem will be performed as a monolog by the author. The poem is about a young and vulnerable woman who has come to realize that she has the courage to liberate herself from a deceitful boyfriend, and confronts him. This piece is easily applicable for most young women and men. Many of us have had a partner or perhaps a friend who has betrayed a trust or compromised a friendship in some way. This poem is based on a true experience, and is emotionally driven. The emotional responses begin as enlightenment and acknowledgement of the situation. Then, anger and uncertainty takes over, as the decision to stay or leave must be made. Eventually a decision is made to discontinue the relationship and the domineering emotion at the end is liberation.

Public Policy and Marijuana

Andrew Deonarine, Cassandra Voltaire, Michael DeClue, Vishala Sharma
H. Wayne Huizenga School of Business and Entrepreneurship

Faculty Sponsor: **Dr. Charles Harrington**

Abstract

This research project is an examination of the current public policy concerning marijuana from an economic standpoint. Moral or ethical issues concerning marijuana are not examined. This project only answers the question “Is the current public policy for marijuana good for our economy or should the current policies be discarded and altered?”. Within this project three areas concerning the public policy of marijuana are discussed. First, the health aspects of marijuana are discussed. Economic principles and concepts relating to marijuana are then examined. Lastly, the current public policy is analyzed against the proposed new public policy for marijuana. This research project found that the current public policy is having adverse effects on our economy. Therefore, the researchers support a change in the public policy concerning marijuana due to the proposed decrease in costs and increase in revenues.

Public Views of Clients, Therapists, and the Therapy Process

Risel Borrego and Julio Gurrea

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Faculty Sponsor: **Dr. Michael D. Reiter**

Abstract

Therapists and clients have primarily been portrayed negatively in the media, where clients are viewed as being “crazy” and therapists as unethical. Past research has mainly focused on the perceptions of current therapy clients or the feedback of clients to the therapeutic relationship. However, there has been a comparative lack of research measuring the opinions of the general public concerning therapy and the therapeutic relationship. This study will explore the public’s attitudes towards professionals in the mental health field as well as those who attend therapy. Participants will be chosen on the bases that they have not attended therapy in the past and that they are at least 18 years of age. They will be asked five open-ended questions, with potential follow-up questions, regarding their opinions towards therapists, clients, the therapy process and where they got their opinions from. All participant data will be tape-recorded and the responses will be transcribed. Data will be qualitatively analyzed to explore key themes. Potential usefulness of this research is that mental health practitioners can use the findings to understand and discuss with new clients the actual process of therapy to counteract any misconceptions that clients might hold.

Sheer Genius: Lads, Chicks, and the New Masculinity

Liz Harbaugh

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Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Suzanne Ferriss**

Abstract

This paper addresses the emerging “dick lit” tradition and examines Nicholas Hornby’s *High Fidelity* as a movement towards a new conception of masculinity. The focus is on the movement away from traditional masculinity towards a new idea, expressed mostly through the use of “chick lit” and “chick flick” tactics.

Strengthening Silicate Coatings on Quartz Particles with the Addition of Aluminum Phosphate

Moataz Behairy, Maria Bernal, Kamaljit Kaur, Mark Monroe, Jennifer Novek, Farheen Parvez, Shweta Shah, and Vien Tran

Division of Math, Science and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Robert Pomeroy**

Abstract

For aesthetic purposes, quartz particles are coated to provide a wide array of colored sands. These colored sands are used extensively in roofing shingles and pool plasters. The coating is a proprietary mixture whose base is sodium silicate. Sodium silicate solutions are also referred to as water glass. Upon heating to remove water, a hard amorphous silicon dioxide coating is left behind. This coating is rugged but not as tough as crystalline quartz. This study investigates the use of Goldschmidt's rules of substitution, a fundamental theory from geochemistry, to enhance the coating of the quartz particles. Aluminum phosphate was chosen as a potential hardener based on its ability to undergo coupled substitution in the silica lattice. Hardness was determined through scratch test and increased bond strength confirmed through FTIR. Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) was used to monitor the escape of toxic heavy metals from the coating into surrounding water. The increase in strength and durability as well as the modified coatings ability to inhibit the loss of toxic metals through solubilization are reported.

Students Upset by “Necessary” Parker Microlab Closures

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Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Suzanne Ferriss**

Abstract

As NSU continues to grow and the undergraduate population increases, more classroom and office space are required in the Parker Building. The area modified to accommodate the new rooms contained the first floor microlabs. Relied on heavily by students due to their convenient location near the classrooms, these labs were used to complete homework and print documents between classes. Many students felt that administration’s decision to remove the labs was detrimental to their academic experience since they would have to travel to other lab locations to complete their work, such as the crowded Alvin-Sherman Library labs that are shared with Broward County residents. Both student and administration concerns, including those of Dean Don Rosenblum, are examined. Since a considerable amount of computers were moved from the labs prior to their conversion into classrooms, those machines’ status and current location are questioned. This article presents an example of how an expanding university must prioritize its resources but also how these decisions affect the student body. Following the publication of this article in NSU’s *The Knight* newspaper (since renamed *The Current*), a single print station was installed in the Parker lobby.

Synthesis of New Ruthenium (II) Complex with a Long Excited State Lifetime for Its Use as a DNA Probing Biosensor

Terry-Ann Dawes

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Faculty Sponsor: **Dr. Dimitrios Giarikos**

Abstract

Due to the degree of instrumentation needed for DNA diagnostic procedures, it has become considerably expensive for the public and independent laboratories to conduct research on genetic diseases and to probe DNA. Even though myriad technologies are available for detection and measurement of modified target molecules, DNA probing techniques are involved and complex processes. To remedy the problem, researchers have developed methods of molecular binding detection by using fluorometric assays because they are more sensitive than colormetric ones. However, these have proved to be inefficient because of complications due to background fluorescence and light scattering. Additionally, current methods of chemiluminescence by metal-ligand complexes (such as those with ruthenium) are ineffective because luminescent lifetimes are extremely short. The proposed project will examine metal-to-ligand charge transfer in DNA with the use of novel ruthenium-ligand complexes with enhanced emission lifetimes. DNA will react favorably with these complexes because it has excellent electron conducting capabilities and provides a 'circuit' through which electrons from the complex may flow. So, because the new ruthenium-ligand complexes will be synthesized to have an enhanced emission lifetime, intercalation with DNA will be more easily observed with the naked eye without the use of extensive instrumentation. Such interactions between DNA and the complexes will allow various reactions and modes of binding to be observed during the design and development of new drugs, synthetic restriction enzymes, DNA footprinting, and DNA diagnostics.

Terbinafine in the Treatment of Onychomycosis: Review of Efficacy and Safety

Richard Voskoboynikov

Division of Math, Science and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Mark Jaffe**

Abstract

The purpose of this literature research project is to investigate the efficacy and safety of terbinafine when used to treat onychomycosis. Onychomycosis is defined as a fungal infection of the nail, mainly caused by the organism *Trichophyton rubrum*. The estimated prevalence rate is 8% for the general population of North America, with higher rates occurring in special populations such as the immunocompromised as well as patients afflicted with diabetes. Traditional treatment methods have not been as effective and safe as terbinafine therapy. This allylamine agent inhibits the enzyme squalene epoxidase, crucial to the ergosterol biosynthesis pathway. In addition to impeding growth due to a depletion of ergosterol, which is a vital component of the plasma membrane, a toxic, intracellular accumulation of squalene occurs. Because squalene epoxidase is not cytochrome P-450 dependent, significantly less drug interactions occur. Terbinafine is a broad range antifungal, with a minimum inhibitory concentration and minimum fungicidal concentration much lower than traditional treatments. The mycological cure rate across 20 studies is $80.1\% \pm 2.3\%$ (mean \pm std. error), which is superior to griseofulvin, itraconazole, ketoconazole, and fluconazole. The frequency of adverse effects was minimal and not significantly different when compared to placebo. When terbinafine is used in concomitantly with a topical medication, increased cure rates, decreased failures, and less relapses have been reported. Based to its efficacy rates, broad spectrum use, excellent safety profile, and decreased possibility of drug interactions, terbinafine should be the drug of choice for treatment of onychomycosis in adults and special populations.

Thank you, United States

Sebastien Charles

Division of Math, Science and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Delmarie Martinez**

Abstract

This poem is written to outline the many frustrations that a teenager growing up in Haiti can encounter. The poem talks about how it is forbidden for many kids to go into relationships at a young age. However, it is much deeper than that. This poem symbolizes all the restrictions that teenagers in Haiti are revolting against.

The Behavioral Development of Adolescents with Attention Deficit Hyperactivity Disorder: Influences of Medications and Recommendations for Best Practices Pertaining to No Child Left Behind

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Fischler School of Education and Human Services

Faculty Sponsor: **Dr. Patrice LeBlanc**

Abstract

Attention Deficit Hyperactivity Disorder is a condition which affects 3-7% of school age children. The condition is characterized by behavioral symptoms that can be highly disruptive to both the home life and the classroom. These behaviors typically include inattention, impulsivity, and hyperactivity. ADHD is caused by a malfunction or variation with the neurobiological system. Researchers believe that stimulant medications aid in the production of chemical neurotransmitters which help neurons communicate with each other. The No Child Left Behind Act is forcing teachers to find new strategies to teach the required curriculum to students with ADHD. A combination of psychostimulant medications and best practices assist students with ADHD. Psychostimulants are the most widely used treatment for children with ADHD. The most often prescribed stimulant medications are Ritalin and Aderall. The impact these medications have on behavioral development in adolescents is discussed in this paper.

**The Effects of Aluminum on Gene Expression in
*Saccharomyces Cerevisiae***

Maria Farrell

Division of Math, Science and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Emily Schmitt**

Abstract

Aluminum toxicity has been found to be a major constraint to crop productivity, a neurotoxic agent in animals and proposed to be a cofactor in human diseases such as Alzheimer's, Parkinson's, anemia, growth disorders, glucose intolerance, and cardiac arrest. Suggested mechanisms of toxicity include alterations in nucleic acid function, changes in cell membrane permeability, inhibition of enzyme activity and protein synthesis, as well as competitive inhibition of several essential elements including magnesium, calcium, and iron. While several studies have examined gene expression of a few genes in response to aluminum (Al) exposure, there is a lack of data concerning how an entire genome responds to the presence of Al. In this research microarray technology was used to examine the potential effects of Al exposure (50, 100, 200, and 300 μ M Al solutions for 30 hours) on gene expression in *Saccharomyces cerevisiae* (yeast), a model organism that shares roughly 31% of its genome with humans. Changes in gene expression were analyzed using MAGICTool, software developed through the Genome Consortium for Active Teaching (GCAT). Variability within and among microarray slides was specifically addressed by examining expression patterns on eight slides that received the same treatment (0 μ M Al). Subsequently, several genes were identified as being down-regulated in the Al conditions. Fewer genes were identified as being up-regulated under these same conditions. Particularly genes involved in metabolism, protein synthesis, and stress response were more noticeably affected.

Partial financial support was provided through the Farquhar College of Arts and Sciences Undergraduate Honors Program.

The Effects of Trolox (Vitamin E) on Gene Expression During Oxidative Stress in *Saccharomyces Cerevisiae*

Ivan Jozic and Tracy Vuong

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Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Emily Schmitt**

Abstract

Cellular oxidative stress contributes to the production of reactive oxygen species (ROS) during metabolic processes, which may cause many illnesses including cancers. Hydrogen peroxide (H_2O_2) forms radicals that may react with various cellular components such as DNA, proteins, and lipids. This research focuses on the use of Trolox (vitamin E) as an antioxidant in the model organism *Saccharomyces cerevisiae* (yeast). The abilities of Trolox to decrease cellular damage caused during oxidative stress is investigated through two known oxidative stress genes and four genes of unknown function (suspected to have a role in controlling oxidative stress). Additionally, separate cultures will be exposed to two different concentrations of H_2O_2 (3% and 30%) to determine its effects on the six genes. RNA is extracted from the Trolox and H_2O_2 treated yeast cultures. Quality and quantity of the RNA is measured using UV-spectrophotometry at the absorbance wavelengths of A260nm and A280nm as well as the A_{260}/A_{280} ratio. Gel electrophoresis is used to analyze the quality of the RNA extracted by visualizing the large and small ribosomal subunit bands. A reverse transcription reaction is performed to convert mRNA to cDNA, and then Polymerase Chain Reaction (PCR) is performed to test for the presence and relative quantity of targeted genes. The size and relative brightness of the resulting bands are checked against the molecular size standard to determine the potential effects of Trolox and H_2O_2 treatment on selected gene expression.

The Explanation of Conduct Disorder via Piaget's Theory and Evidence-Based Practices for Classroom Practice

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Fischler School of Education and Human Services

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Abstract

Over the years there has been a noticeable increase of children with behavioral problems and disorders. One of these disorders is the conduct disorder. A conduct disorder is the repetition of negative behavior, which includes such characteristics as lying, cheating, and aggression towards people and animals. Since this disorder involves such negative behavior, educational problems occur. By looking at Piaget's theory of development, the educational problems of students with conduct disorders can be explained. These explanations involve looking into the four factors that influence the way we think: activity, social experiences, biological maturation, and equilibration. Additionally, since many educational problems occur, students with conduct disorders may have difficulty meeting the standards for No Child Left Behind (NCLB). Evidence-based practices applied in the classroom can help these students meet success.

The Formation of a New Gadolinium Dendrimer and its Potential Use as an MRI Contrast Agent

Karoline Korah

Division of Math, Science, and Technology
Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Dimitrios Giarikos**

Abstract

The search for a magnetic resonance imaging (MRI) contrast agent that enhances the images of the body's bloodstream, tissues, or organs is currently continued. There are several known gadolinium compounds that are used as MRI agents. The use of dendrimers as an MRI contrast agent is being investigated, but the recent focus on the applications of dendrimers allows much of the developments of research to be fairly new. This research project will involve creating a new gadolinium compound and studying the possibility of using it as an MRI contrast agent.

The Impact of External Influences on Character Development

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Farquhar College of Arts and Sciences

Faculty Advisor: **Dr. Suzanne Ferriss**

Abstract

It has been said that individuals define themselves by their relationship to others. If so, the identities of characters in literary works are also determined by external influences, such as religious influences, social expectation, codes of behavior, and familial or political loyalties because these external influences alter or affect the individual's sense of identity and purpose. To prove this thesis, this essay analyzes major characters from the works *Beowulf*, *Paradise Lost*, and *King Lear* and the relation of their development as characters to developing external influences within their works.

The Peaks or the Line?

Vien Tran

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Farquhar College of Arts and Sciences

Faculty Sponsor: **Marci Bartolotta**

Abstract

“The Peaks or the Line” is an analysis of the euthanasia theme in the movie “Million Dollar Baby.” “Million Dollar Baby” is an inspiring story of a poor waitress named Maggie who turns into an accomplished boxer with the help of her trainer, Frankie. Toward the end of the movie, a horrific accident happens to Maggie, and at her request, Frankie puts her to death. An analysis of this euthanasia theme is not an argument over the morality of it but rather an evaluation on its effectiveness in the context of a movie. Since “Million Dollar Baby” is a serious film, it is expected that it should give a good representation of a sensitive social issue. “Million Dollar Baby” cannot effectively address the complications of a euthanasia theme. The way Frankie, a emotionally torn man, decides to fulfill his boxer’s death wish is unrealistic. The way the movie paints a calm portrait of Maggie prior to her death is also troublesome, since it makes her wish to die seem like a clear-cut decision, which is not likely to be. This film also focuses too much over the issue of broken dreams, that it seems to skim over the fact that in many instances, the reason for a person to resort to euthanasia is the inability to obtain adequate care and social negligence. Such reasons render the euthanasia representation of this movie ineffective.

The Way It Has Been

Louis D'Lando

School of Business

H. Wayne Huizenga School of Business and Entrepreneurship

Faculty Sponsor: **Dr. Delmarie Martinez**

Abstract

This poem explains the duality of being part of a certain ethnic background and at the same time being part of a generation in the United States where everyone wants to be seen as one. It reflects both, the need to belong and the fear of losing one's sense of "identity" as time wears on.

Trinidad Carnival: “The Greatest Show on Earth”

Marissa S. Dass

Division of Humanities
Farquhar College of Arts and Sciences

Faculty Sponsor: **Jennifer Reem**

Abstract

Trinidad Carnival is the oldest and greatest of them all, the mother of all carnivals, often imitated, never equaled. Billed as “The Greatest Show on Earth”, Trinidad Carnival is far more than two days of masquerading, it is a whole explosive season in itself; and the seeds of brilliance that blossom during the carnival season have been germinating in the minds of designers, composers and pan-men, well before Christmas. Trinidad Carnival is dubbed “The Greatest Show on Earth” because it is recognition of the human need to recreate, to play and to learn about the truth, joy and art of living. There is no experience on earth to compare to Trinidad carnival. Steeped in history and fascinating events, Trinidad carnival is “The Greatest Show on Earth”.

Xenotransplantation: Using Pig Organs for Human Transplants

Jessica Gonzalez

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Farquhar College of Arts and Sciences

Faculty Sponsor: **Dr. Emily Schmitt**

Abstract

Xenotransplantation is a potential organ replacement therapy that offers enormous promise. Ultimately this new and developing technology would allow for mass production of pig organs to combat the shortage of human organs for transplant. In this literature review, the current process of xenotransplantation is being studied to see whether it could be the answer to the shortage of organs and the death of so many in need of an organ each year. Xenotransplantation has some shortcomings that must be overcome before its use. Currently some of the major molecular difficulties with pig organs in humans include hyperacute rejection and the porcine endogenous retrovirus known as PERV. Hyperacute rejection involves the human immune system responding to the carbohydrate epitopes found on the pig's endothelial cells which leads the body to reject the organ. PERV is a retrovirus that was discovered to be a component of every pig cell. Current research indicates that PERV may infect human cells if a whole organ pig to human transplantation were performed. If human cells are indeed infected, the virus could mutate and potentially become just as virulent as the AIDS virus. In this paper these obstacles and possible solutions are explored.