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2003 - The Eighth Annual Symposium of Student Scholars

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The Eighth Annual Symposium of Student Scholars

Recognizing Excellence in Student Scholarship

April 18, 2003
Eighth Annual
Symposium of Student Scholars

April 18, 2003

Program

9:00 a.m. Welcome

8:30 a.m. – 11:00 a.m. Posters
Presenters available to discuss their works

Presenters at even-numbered displays will be available from 8:30 – 9:45
Presenters at odd-numbered displays will be available from 9:45 – 11:00

Organizing Committee
Dr. Bill Ensign, Committee co-chair, Associate Professor of Biology
Dr. Don McGarey, Committee co-chair, Associate Professor of Biology
Dr. Mark Patterson, Assistant Professor of Geography
Ms. Carol Pope, Assistant Director for disabled Student Support Services,
Advisor for Phi Kappa Phi

Special thanks to:
Phi Kappa Phi for support of the reception and printing of the abstract booklet.
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Inclusion Policies of Proprietary Care Preschools: Kathy Kennebeck*, Dr. Raynice Jean-Sigur and Dr. Loretta Howell

Department of Early Childhood and Elementary Education, Bagwell College of Education

This study examines the extent and quality of services available to children with disabilities in proprietary care preschools. Nine directors surveyed assessed their programs in respect to staff knowledge, training, and collaboration with specialists. The director's responses to a 17-item questionnaire reveal that preschools with an academic curriculum seem to integrate children with special needs as frequently as preschools with a child-centered curriculum. Several directors indicated that their staff is not familiar with Title III of the ADA, is not familiar with the term "natural environment", and/or is not knowledgeable in modifying instruction for children with disabilities. Most proprietary care preschools may better serve children with disabilities by improving staff training in medical and legal issues.
The electronic alphabet book is intended for emergent and beginning readers, anywhere from K-2nd grade. This interactive book, created in iMovie and Powerpoint, features bold graphics and brief movies representing each letter of the alphabet. Designed as an informal reading assessment, students are challenged to discover the words that begin with each letter. It differs from other alphabet books in that children will enjoy the movies and interactive format on the computer. Audio as well as visual stimuli appeal to different learning styles. Teachers may use the book to assess learner's alphabetic and phonemic awareness. Progressing through the program with the learner, teachers may note which letters and sounds the student finds difficult.
Gentrification and Property Values in Atlanta: Anthony Muhia*¹, Dr. Kenneth Gilliam¹ and Dr. Agatino La Rosa²

¹Department of Economics and Finance, Coles College of Business
²Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

Gentrification has been studied since its recognition as an urban phenomenon in the early 1970's. The initial studies concentrated on the causes, scope, and social consequences of gentrification. More recently, the impact of mortgage financing and the role of housing policy in gentrification have also been analyzed. Recent research in Atlanta has looked at the patterns of residential revitalization in historic neighborhoods and vacant properties over time. There has also been considerable interest in finding ways to counter barriers that hinder residential revitalization. This research paper uses field observation and available data on property prices to establish whether gentrification is responsible for the desirability of neighborhoods in the central city of Atlanta. A desired neighborhood is the one that has property prices that rise sharply over a period of time, while an undesirable neighborhood shows property prices stagnated or declined over the same period.

This study analyzes two samples of property prices, one representing a neighborhood in central Atlanta and the other includes property prices of a neighborhood of the city of Marietta, one of the fastest growing suburban areas of Atlanta. Using the address-matching procedure included in ArcGIS, these data have been displayed in form of maps and then analyzed in a spatial context. Although several factors affect changes in property values, this study assumes that the same socio-economic components affected changes in property values in both neighborhoods, the one in the central city and the other in the suburbs. The application of statistical tests for significance in the deviations of both samples suggests that gentrification has driven the growth of property values in some residential districts of Atlanta from 1991 to 2001.
College of Health and Human Services

The effects of a 6-week dumbbell strength training program on physical function of older adults: Richard J. Burke* and Dr. Angela Lanier

Department of Health, Physical Education and Sports Science, College of Health and Human Services

Purpose: The goal of this project, in conjunction with the Department of Human Resources, COOSA Valley RDC, Rome Area Agency on Aging, was to examine the effect of a group dumbbell strength training program on physical function of older adults.

Methods: Nineteen community-dwelling older adults (Age = 76 ± 7.9 yrs; Males = 3, Females = 16) completed six weeks of supervised weight training three days/week. Pre and post 6-week physical function assessments included 6-minute walk distance, eight-foot up-and-go time, number of chair stands in 30 seconds, and number of arm curls in 30 seconds.

Results: The number of arm curls performed in 30 seconds increased 50 ± 10 % (p < .0001). Distance walked in 6 minutes increased 20 ± 12 % (p < .01). The participants reduced the time to complete the 8-foot up-and-go during the post assessments compared to the pre assessments (post = 7.73 ± .68 s, pre = 9.46 ± .81 s; p < .01). The participants did not improve the number of chair stands performed in 30 seconds (p > .05). However, several participants who were previously unable to stand without aid during the pre assessments were able to complete a chair stand without the use of their arms during the post assessments.

Conclusions: The results of this project suggest that a dumbbell strength training program is an effective exercise protocol to improve the physical function of community-dwelling older adults.
College of Humanities and Social Sciences

Negative Political Advertising: Does it Impact Voters’ Perceptions of the Candidates: Jennifer L. Ponders* and Dr. Keisha Hoerrner

Department of Communications, College of Humanities and Social Sciences

Negative campaigning has been widely studied by communication scholars, political scientists, psychologists, and social scientists. In general, new studies support older ones about the effects of negative campaigning. Unfortunately, there are still two or more sides. Scholars like Stephen Ansolabehere and Shanto Iyengar have long held that negative campaigning does affect the way voters view candidates and causes a decrease in voter turnout on election day. However, scholars like Richard R. Lau and Gerald M. Pomper argue that negative ads foster the campaign process and encourage people to get involved, and they do not change how people look at candidates. This study attempted to resolve this conflict within the literature. Utilizing a survey of 143 respondents in the Atlanta area during the November 2002 elections, this study looked at the voters’ perceptions of the candidates who use negative advertising. The independent variables analyzed were age, gender, educational background, household income, whether or not the respondent was registered to vote, respondent's participation in past elections, political party affiliation, and intention to vote in the November 2002 election. These variables were used to look at the dependent variables consisting of usefulness and effectiveness of negative ads, willingness to vote, and respondents' like and dislike of negative ads.

The results revealed that voters who are active in the election process are not impacted. However, many voters look disapprovingly at negative ads. Many respondents felt that candidates should be more concerned about their constituents rather than trying to “beat” their opponents. Additionally, some respondents cited the fact that negative ads do not give them an honest view of the candidates as one of the reasons why they dislike negative ads. Furthermore, unlike the results of past studies, this study found no correlation between gender and the influence of negative ads. In past studies, men were more approving of negative ads than females. A surprising and almost disturbing finding of this study was that many voters are uninformed or uninterested in the election process even though more than seventy percent intended to vote in the November 2002 election.
Let your conscience be your guide: Alcohol and tobacco use in G-rated, animated Disney films: Erin L Ryan* and Dr. Keisha Hoerrner

Department of Communications, College of Humanities and Social Sciences

Disney films have long interested media effects scholars, who have consistently shown that the "wholesome" image generated by the company is misrepresentative. This content analysis investigated tobacco and alcohol exposure in 24 Disney G-rated, animated, feature-length motion pictures from 1937 to 2000. The presence of alcohol and tobacco in G-rated films is of grave concern. Media effects research, particularly Bandura's studies in the 1960s that sparked his Social Learning Theory of modeling behavior, has shown a link between what children are exposed to in the media and their subsequent behavior. Repeated exposure to dangerous products like tobacco and alcohol could lead to the use of such products by young children.

Content in this analysis was examined to determine if, in fact, tobacco and alcohol were present in the children's films, and, if so, did the exposure to such deadly products change over time. Additionally, the context surrounding any exposure was recorded. This study's results contradicted earlier work in this area. The analysis found 381 incidents of substance use: 106 tobacco exposures and 275 alcohol exposures. Only three of the 24 films contained neither tobacco nor alcohol. The most commonly pictured tobacco product was the pipe and the most commonly pictured alcohol product was beer. By far, Beauty and the Beast contained the most alcohol use (70%) and One Hundred and One Dalmatians contained the most tobacco use (20%). A chi square between release date by decade and type of exposure showed significance; over the decades, tobacco use tended to decrease while alcohol use increased. The 1950s pictured the most tobacco exposure (25%) while the 1990s showcased the most alcohol exposure (63%). Virtually no anti-use messages were seen in these films directed to young children. Of the 381 total exposures, a mere 14 (4%) were rejected while 345 (91%) were accepted. A chi square test showed significance between type of exposure and context; interestingly, only two (1.4%) of the 14 rejections were directed toward alcohol products. In summation, Disney films marketed to young children clearly contain both tobacco and alcohol and there is almost a complete absence of anti-use sentiment regarding the use of such products.
Personal Enrichment and Professional Development of Previous Peer Tutors From the Kennesaw State University Writing Center: Margie Hendrix* and Dr. Robert Barrier

Department of English, College of Humanities and Social Sciences

Faced with budget cuts, writing centers sometimes find it necessary to forego the use of paid peer tutors for the volunteer help of the university faculty. This situation was the case for KSU's Writing Center in Fall of 2002. With college expenses being a constant issue for students, many of the paid tutors had to move on to paying positions rather than to volunteer their services to the Writing Center. This situation triggered these questions: "What, besides monetary value, are these peer tutors losing by missing out on their Writing Center experiences? Do peer tutors carry skills and benefits from the tutoring experience into their professional lives? And if they do, what are those benefits?"

While some literature exists concerning the value of the writing center experience to the peer tutor, its main focus is on the value of the experience to the tutor who is in teacher training though it is evident that tutors come from across the disciplines, and they work in many different fields. The literature also represents the perspectives of students who are working as peer tutors and faculty who observe the peer tutors, not the perspectives of the previous peer tutors who have now entered their professional lives. This study interviews previous peer tutors from Kennesaw State University's Writing Center to determine whether those tutors feel that they gained skills and other benefits that assist them in their professional lives today. These interviews were accomplished through a mailed questionnaire that provided some surprising answers that will be of interest to potential tutors, teachers, writing center directors, and university administrators.
Gender Differentiated Media Coverage of Political Candidates: A Look at the Georgia 2002 Republican Primary for Governor: Rebecca Long * and Dr. Keisha Hoerrner

Department of English – Master of Arts in Professional Writing Program, College of Humanities and Social Sciences

This study was completed in Fall 2002 in compliance with the requirements for a Bachelor of Science Degree in Communication. As a senior thesis project, the assignment required the student to develop and complete an original quantitative research study. The objective of the study was to examine the media coverage of Linda Schrenko, who attempted to be Georgia's first female Republican gubernatorial candidate.

Women are typically seen as having a disadvantage in the political arena because of stereotypes. Previous research has shown that the bias in media coverage of female candidates stems from the societal stereotypes in the different leadership styles and priorities of women and men in public office (Stein, 1990; Tidmarch, Hyman, and Sorkin 1984, as cited in Kahn, 1994b). For example, female candidates are considered stronger in social issues such as education, the environment and healthcare, while men are seen as stronger in dealing with foreign policy and defense (Kahn 1994b). These perceptions can greatly influence the public, including reporters and editors who may inadvertently reflect these patterns in their coverage (Kahn, 1994a). While these stereotypes have become less prevalent and common in recent years, evidence suggests that some of these beliefs still exist and are apparent in media coverage of political campaigns.

The analysis of the content of four daily newspapers in the state of Georgia helped to study the trend of gender bias in print media. Newspaper articles were analyzed for length and content from April 13, 2001 until August 21, 2002. This time span began the day that Schrenko announced her candidacy and ended with the post-election coverage. The four newspapers selected for analysis were: The Atlanta Journal & Constitution, The Augusta Chronicle, The Rome News-Tribune, and The Savannah Morning News.
How hard is it to find a good man?: an e-book: Lesia Schnur* and Dr. Robert Hill

Department of English – Master of Arts in Professional Writing Program, College of Humanities and Social Sciences

Hypermedia incorporates text, images, and sound and places these elements on the Internet or CD-ROM. Multimedia and hypermedia are emerging technologies that are becoming more accessible to writers. As a screenwriter, I am able to exploit the computer by writing, producing, and posting mini-narratives for others to read, view, and experience.

E-book (electronic book) technology has allowed me to combine these elements to create moving narratives in which the reader is not restricted to a linear story. The reader becomes the user and may decide and select the path the narrative will take. The user is engaged in the story longer and will return for multiple interactions.

My story is a retelling of the Flannery O'Connor short story, "A Good Man Is Hard to Find." By creating this short story, I can move the characters, plot, and settings from a static script to the dynamic venue of e-publishing.

We are on the ground floor of this technology, and writers will provide the impetus behind its success.
The Education of Latinos in Georgia: Nancy DeLisle-Brown¹*, Dr. Anja Bernardy¹ and Dr. Liza Davis²

¹Department of Foreign Languages, College of Humanities and Social Sciences; ²Honors Program

Few countries have experienced as great an influx of people from other cultures and ethnicities as the United States. Webster's Twenty-First Century Dictionary defines immigration as "entering a country to settle" (132). This definition is confirmed by the burgeoning number of immigrants in North America today. Primarily of Latino origin, most come from countries where hunger and/or deteriorating environmental conditions are so rampant or severe that the immigrants are no longer able to provide adequately for their families' needs and well-being.

The early and massive influx of Latinos to the West created anxiety among many Americans who feared uncontrolled Third World immigration. In response to Americans' concerns, the United States government enacted laws to control immigration and to impose "English-only" laws on Latino immigrants. Such laws often portrayed immigrants negatively and ultimately resulted in violence and hate crimes against Latinos. Over the last century, in fact, nothing has proved as controversial among indigenous Americans interacting with Latino immigrants as the issue of bilingualism. However, the Spanish language and, by extension, many aspects of Latino culture have firmly taken root in American culture. Few places exist in America today where advertisements, product endorsements, and instructions or public information is displayed only in English.

Yet transplanted Latinos continue to face obstacles, particularly within the realm of education. As Monica Friedlander, author of The Newcomer Program: Helping Immigrant Students Succeed in U.S. Schools, recently confirmed, "Immigration has had a profound effect on our society... and no where is that impact more obvious than in our schools."

As part of a field research project recently completed for Honors 2290 and presented this February at the annual conference of the Georgia Collegiate Honors Council, I conducted several investigations to assess the educational areas with which many Latinos struggle. For example, I interviewed several elementary school faculty in the Atlanta area, including an organizational representative; I conducted student case studies; and I participated in a three-week, in-class observation of an English for Speakers of Other Languages (ESOL) course. My presentation presents the results of my research and draws conclusions about educational reforms that can benefit Latinos immigrants to the United States.
The Savannah College of Art and Design (SCAD), a private, non-profit college has become a major player in the redevelopment of Savannah's National Historic Landmark District. This research is a case study documenting the rise of SCAD as an academic entity whose power and political relationship with local government has been instrumental in manipulating public policy for acquisition of real estate and financial gain. Evidence is presented that shows that this unique relationship between SCAD and the local government has been mutually beneficial in the revitalization of Historic Savannah. This symbiotic relationship adheres to Robertson's Seven Strategies for Downtown Redevelopment. Several indicators are provided that suggest that institutional gentrification is in progress currently in Savannah, Georgia at the expense of some segments of the local populations.
Web-Based GIS Mapping of California Earthquakes:
Teresa Hamilton*, Dr. Agatino La Rosa and Dr. Mark Patterson

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

We live amidst natural hazards yet our world keeps growing at unprecedented rates. Earthquakes are prevalent in many of the densely populated areas of our world, and occur daily, devastating numerous cities, towns, suburbs, and agricultural areas. In order to determine if earthquakes deter the populous' decision to live within these natural hazardous areas, population growth is analyzed in respect to earthquake areas. Los Angeles and San Francisco are both metropolitan cities and are located along the San Andreas Fault line, which causes more active earthquakes in California than any other location in the conterminous States. Due to this fact, these cities were incorporated in the analysis. United States Census Bureau statistics were gathered for San Francisco and Los Angeles counties for 1980, 1990 and 2000. Earthquake statistics were obtained from the state of California for the same years. Using queries, the Census Bureau statistics were extracted for the areas within the earthquake area over the study time span and analyzed to determine population growth.

GIS applications are increasingly being ported to the web for the distribution of information in the form of interactive maps. In this GIS web-based application, results of the earthquake analyses can be distributed in forms of maps via the Internet to potential users. New residents in both cities can review the history of earthquakes in the area of their choice. Maps providing the spatial distribution of earthquakes in California can be displayed by selecting three major elements: (1) the census tract of interest; (2) the timeframe of earthquakes occurrences; and (3) the magnitude of the earthquakes. This information would support relocation decisions to potential newcomers.
Georgia Congressional Districts: Daryl Miller* and Dr. Agatino LaRosa

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

The U.S. House of Representatives is composed of elected members from each state with each state's number of representatives based on population. This is established in the Constitution and is the original reason the census taken every ten years in this country. The number of available seats has remained constant for decades, but population shifts nationwide may shift numbers of representatives between states to provide equal representation for Americans in Congress. When the census proved that population growth in Georgia should add two additional representatives, it was necessary to reapportion the districts.

Guidelines for redistricting provide that districts must be contiguous, meaning that all parts of a district must connect and provide complete coverage. They must also be approximately equal in population, so was important that each of Georgia's 13 Congressional districts represent one-thirteenth of the states' population of 8,186,453 people or 629,727 per district. Additionally, there were also specific legal restrictions on racial representation so these districts were created from precise census block data with a mandate not to dilute minority-voting power. Census records show that when these districts were drawn, the population deviation from the desired norm was less than .01%. Each district came within -37 people to +35 people of the ideal population value of 629,727, so the legislators succeeded in drawing the districts completely and equally. They are technically contiguous, but hardly compact. Georgia legislators redrew Congressional district lines crossing county lines, and often separated counties into several areas creating districts that stretched across small portions of many counties. This has divided representation for counties and split communities. State politicians created districts to assure their own or their parties' reelection, and in a year of adding two districts to the state, managed to carve out districts that drew two incumbents out of their districts.

This study focuses on the relationships between the territorial divisions of the 159 counties of Georgia with the new geographic organization of the Congressional districts. GIS spatial analytical procedures were applied to investigate which counties were split by the 2002 redistricting process. Future research of census block data may compare minority residential makeup with the ultimate goal of defining new districts that cover equal population areas, minimize division of counties and meet minority requirements as complete, contiguous, and compact districts.
Spatial Analysis of Motor Vehicle Theft and Robbery in Gwinnett County: Claudia Castillo* and Dr. Agatino LaRosa

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

Gwinnett County is one of the nation's fastest-growing large counties. As a result, Motor Vehicle Theft and Robberies continue to increase annually. Motor Vehicle Thefts are the largest by dollar volume property crime. Robbery is the highest volume crime where the suspect does not know the victim. Therefore, these crimes are important for the Gwinnett County Police to track each year. The Gwinnett County Police Department has a limited force and finite resources. Therefore, the resources must be allocated so as to impact the areas where the greatest volume of Motor Vehicle Thefts and Robberies occur each year.

GIS are successful in determining pattern areas of spatial events and consequent classification of areas according to the amount and type of occurrences. This study presents three major objectives. The first objective is to help the Gwinnett County Police Department in understanding the spatial arrangement of Motor Vehicle Theft Hot Spots and Robbery Hot Spots within the county over a years time span. The second objective is to help the Gwinnett County Police Department in understanding the spatial relationships between (Motor Vehicle Theft and Robbery) Hot Spots and population density within the county. The final objective is to help the Gwinnett County Police Department in reorganizing the spatial alignment between (Motor Vehicle Theft and Robbery) Hot Spots and beat areas.

GIS procedures have been used to identify Hot Spots (for Motor Vehicle Theft and Robbery) in Gwinnett County. In addition, GIS spatial procedures have indicated the relationships between population density and their alignment with beat areas within the county. Maps have been provided to the Police Department to understand and analyze the problem.
The Louisiana Purchase: Joe Barefield* and Dr. Agatino LaRosa

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

On April 30, 1803, one of the largest land transactions in history took place. It would double the size of the country and put the United States in a position to become a world power. The Louisiana Purchase encompassed the land west of the thirteen original states that stretched past the Missouri river. The transaction was made between the United States and France. Thirteen states or parts of states have been formed from The Louisiana Purchase Territory. Napoleon Bonaparte envisioned a renewed western empire for France. His intent was to recapture Louisiana from Spain. In 1800, Napoleon signed the secret Treaty of Ildefonso with Spain, an agreement that stipulated that France would provide Spain with a kingdom if Spain would return Louisiana to France. Napoleon's plan collapsed when the twelve-year revolt of slaves in the French colony of Saint-Domingue succeeded, forcing French troops to return defeated to France and preventing them from reaching their ultimate destination and from being able to defend it. As Napoleon's New World empire crumbled, the losses made Louisiana unnecessary. The United States discovered the transfer of Louisiana from Spain to France and sent Robert Livingston to France in 1801 to try to purchase New Orleans. Napoleon initially refused, leading President Thomas Jefferson to send James Monroe to secure the deal. In April 1803, days before Monroe was to arrive in Paris, Napoleon offered to sell the United States all of Louisiana. The United States purchased the Louisiana Territory for a total purchase price of $15 million. In order to claim its new territory with authority, the United States first had to explore and then populate it. President Jefferson commissioned Meriwether Lewis and William Clark to head the first transcontinental expedition. In May 1804, once the transfer of Louisiana to the United States was official, Lewis and Clark departed from the St. Louis area with forty soldiers. Their journey up the Missouri River, into uncharted lands, across the Great Divide, and along the Columbia River to the Pacific Ocean took over a year. They returned to St. Louis in September 1806. The Lewis and Clark expedition was the first government-sponsored scientific enterprise in the United States. It was America's first attempt to evaluate the environment of the Great Plains, the breadth of the Rockies, and the nature and extent of the terrain west of the Continental Divide.
The Agricultural Significance of Stoddard County, Missouri: Leonard Morse* and Dr. Agatino LaRosa

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

Stoddard County is located in the southeastern part of the State of Missouri. The county’s land area - 522,000 acres - presents a considerable varied geography. The northwestern portion of the county is dominated by the easternmost extent of the Ozark Mountains. The last line of hills is known as Crowley's Ridge. The land east of the ridge is flat for approximately 40 miles to the bank of the Mississippi River. This area, part of the Mississippi Flood Plains, shows some of the most fertile lands in the United States, and represents the agricultural backbone for the state of Missouri. During the Dust Bowl of the 1930’s, the prevailing winds blew the topsoil from the Great Plains states eastward towards the Mississippi River. Much of this topsoil was then deposited in this region, which includes Southeast Missouri. Another interesting development in this region resulted in 1811-1812. During that winter one of the most amazing natural occurrences in history took place: the New Madrid Earthquakes. Beginning in December, 1811, this region experienced the full blunt of two earthquakes that registered the equivalent of what would be 7.0+ on the Richter Scale, along with several large aftershocks that lasted into January, 1812. The major result of the quakes was the shifting eastward of the Mississippi River forty-five miles to the east. This revealed more potential farmland than was previously available in Southeast Missouri. Southeast Missouri remained basically swampland until the last half of the 19th century. In the last half of the 19th century, a massive undertaking was conducted to drain the swamps. This was done by the creation of many large drainage ditches that were dug all across the region. Also, to prevent the loss of crops to the annual flooding of the Mississippi River, a large levee was built along the western side of the river. The land between the levee and the river is the most fertile land in the United States. Farmers who work this land grow some of the largest yields in the country without using fertilizers due to the mineral-rich deposits left after the recession of the annual floods.
Pirates in the Caribbean: Mary Emily McHaney* and Dr. Agatino LaRosa

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

The Golden Age of Piracy began around the beginning of the 18th century and lasted scarcely 30 years. The turn of the 17th century was a time of gross social and economic injustice for most of the world’s population. In 1688 it was estimated that 75% of Britain’s national income went to barely 20% of the population. The all pervasive injustice and harshness of the day mentally prepared a sailor for some kind of a change but it was the lure of money that provided the strongest motivation. The islands of the Caribbean supplied numerous bays and inlets in which to lurk, the islands placement was directly along the shipping routes of the Spanish Main, and the warm sunny climate did not hurt either. The Caribbean islands location made them an ideal base from which to prey on the heavy volume of shipping that passed through the Gulf of Florida on the sea-lanes between the Spanish Main. The island of New Providence in the Bahamas attracted the greatest concentration of pirates ever seen in the New World. Over 2000 rogues were distributed throughout the island. The Bahamas had remained largely underdeveloped and after being regularly sacked and burned by the Spanish and French during the War of Spanish Succession the British abandoned their colony. There were no laws. New Providence in short was a pirate paradise. Many entrepreneurs made a handsome living by supplying pirates with food, ammunition, and other necessities for their vessels in exchange for plunder such as muslins, calicoes, ivory, spices, gold, jewels, and other luxuries. Perhaps the greatest losers in piracy were the governors of the Caribbean colonies. The pirates were no longer bringing bribes to the governors now that they essentially had control of the Caribbean. With the rising problem of an economy set in a downward spiral the governors of British colonies asked London for help. The Admiralty responded with more men-of-war and appointed the outstanding sea captain Woodes Rogers governor of the lawless Bahamas. Woodes Rogers was given commission to wipe out the pirates in any way he chose. After Rogers had 8 convicted pirates hanged piracy incidents in the Caribbean became fewer and fewer. The glory days of the pirates of the Caribbean had ended.
Lake Allatoona is one of the major water bodies located in the Etowah River Basin (ERB). Located at the top of the ERB, it is a major contributor to the rest of the basin. Historical limnological data of the lake shows it is divided into three regions which differ in water quality due to the sub watersheds that drain into each region. The three regions are the Etowah arm, the Little River arm, and the Allatoona arm. The Etowah arm is the largest part of the lake in surface area and volume. Chlorophyll a levels and oxygen depletion show that this region of the lake has started the eutrophication process. This process occurs when algae proliferates and blooms, blocking sunlight from the deeper parts of a water body. Fertilization of crops or grasses is a major contributor to eutrophication, which can slows or stops the decomposition of sediment and silts at the bottom and eventual “klls” the water body, and causes it to fill in with sediment. High phosphorous levels account for the general trophic state of this arm. Much of the pollutant load comes from urban development, agriculture and forestry practices. In the Allatoona arm temperature and dissolved oxygen profiles were measured near the dam in 1973 and1977. The temperature at the bottom on July 1, 1973 and June 30, 1977 was four to seven degrees centigrade higher than measurements taken on similar dates from 1992-1996. This decline in temperature since the seventies also points toward increased eutrophication of the lake. There is warranted concern of future water quality degradation.

Using GIS analytical procedures it has been possible to study both distribution and amount of lime used for fertilization in counties within the ERB. In addition, this project has identified those counties that contribute with higher levels of phosphorus to the ERB through Lime and Commercial fertilization.
The Religious Change in Georgia, from Royal Colony to State.: Wendell Hand* and Dr. Agatino LaRosa

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

When James Oglethorpe founded the colony of Georgia in 1733, he brought no instructions from the Trustees for dividing the new colony into counties. After Georgia became a royal colony, its new legislative assembly made the Church of England the official church of Georgia, and divided the colony into eight parishes. As in England, parishes served as church districts for support of the clergy and other religious expenses. In 1765, Georgia's colonial assembly divided the land south of the Altamaha River into four additional parishes, given the colony a total of 12 parishes. Following the Treaty of Augusta in 1773, a large area of Creek and Cherokee lands to the north of Augusta was ceded to Georgia. This land was not designated as a parish, rather becoming known as "Ceded Lands." The majority of the Trustees were Anglicans and guarded jealously their control over the religious life of the colony. There were three principal difficulties with religion in Georgia: (1) the small number of ministers; (2) some colonists who wished to have the services of a clergyman but did not; (3) some of Georgia's clergymen were ineffective. Methodist, Baptists, Catholics and Presbyterians had by this time been added to the list of religious denominations of Revolutionary days. John Wesley was the founder of the Methodist religion in Georgia. The first Methodist church to be completed was Grant's Meeting House and was located in Wilkes County. The Methodist depended on support from Virginia and the Carolinas. The first Baptist church was founded by Daniel Marshall and was located in Savannah. The Presbyterian Church in Lexington Georgia claims to be the oldest founded by John Newton. The First Catholic church was in Wilkes County. Catholics from Maryland settled in the area around the church called Locust Grove. Jews were scattered across the state and numbered about 400. There was also a Roman Catholic Church founded in Savannah in 1801. According to Sherwood the Baptists in 1827 outnumbered all others. Reverence for the holy day was apparently as strong in Georgia as in Puritan Massachusetts. Disturbing the worship on Sunday, according to an act of 1792, drew a penalty of ten days imprisonment, a fine of five pounds, or of thirty-nine lashes on the bare back.
Gap Analysis Project on the Habitat Range of Gopherus polyphemus: Sara McCort* and Dr. Mark Patterson

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

The main objective of this ArcGIS project was to use the Gap Analysis concept in order to determine the amount of habitat range in unprotected areas for the species Gopherus polyphemus (gopher tortoise). In a Gap Analysis, digital map overlays in a GIS are used to identify areas of biodiversity that are under or unrepresented in wildlife management areas. In this analysis, the habitat range (the southeastern, coastal plain portion of the United States) for the protected species Gopherus polyphemus was mapped, and then spatial overlays of federally protected lands were used to determine how much of the range is in protected and unprotected areas. This was done for the entire range as well as for each state within the range. Only 6.6% of the entire habitat range for G. polyphemus is in federally protected areas. Out of the five states (Florida, Georgia, Alabama, Mississippi, and South Carolina), Alabama has the least protected area and Mississippi has the most, however, out of all of the states, Florida contains most of the range and ranks third in the amount of protected area it contains. G. polyphemus was chosen as a species because of the important role this species has in its ecosystem, and because it is listed as a federally protected species. The gopher tortoise is considered a keystone species by many ecologists: Gopher tortoise burrows provide homes and refuge for approximately 358 other species. To take this analysis further, it is recommended that each state use the Gap Analysis concept for mapping habitat ranges and using spatial overlays of protected areas for as many threatened and endangered species as possible within the state. By doing this, it will become much clearer where threatened biodiversity is not adequately protected, and each state can determine where wildlife management areas might need to be expanded or implemented.
Implementing GIS to Model the Past, Present and Future of the City of Kennesaw: Claudia Castillo*, Daryl Miller*, Jeanie Newman*, Jeff Searcy* and Dr. Mark Patterson

Department of Sociology, Geography, Anthropology, College of Humanities and Social Sciences

This team project employs geographic information systems (GIS) to provide specific parcel data regarding historic, current and future land use categories. This project primarily required the creation of shapefiles from line drawings, the manual identification of these shapefile parcels, and the integration of a non-spatial database from the City of Kennesaw to create a parcel basemap. The study area included over 10,000 parcels which were identified as city property or nearby potential growth areas with each parcel additionally identified by a zoning code, future land use code and also a historic district code. This project was developed to create a consolidated municipal GIS database to enhance decision-making capabilities for planning in the City of Kennesaw. By using a team approach members have been able to provide data allowing the city to capitalize on their strong historic focus for tourism and economic development as they look to the future with digital Future Land Use maps. The papers created for this project discuss the methodology of data creation, the results and some of the issues faced during the project related to data management and analysis.
Analysis of the Spatial Distribution and Importance Values of Four Tree Species in the Margaret and Luke Pettit Environmental Preserve: Shannon Cutler*, Eric Johnson*, Dr. Heather Sutton and Dr. Paula Jackson

Department of Biological and Physical Sciences, College of Science & Mathematics

In order to gather baseline data for a newly formed environmental preserve in Bartow Co. Georgia, (The Margaret and Luke Pettit Environmental Preserve), a vegetative analysis was performed. Spatial distribution and importance values were determined for four tree species in a second growth forest area. The trees studied were loblolly pine (Pinus taeda), shortleaf pine (Pinus echinata), red maple (Acer rubrum), and blackgum (Nyssa sylvatica). A total of eight 50m transects established at 20m increments at increasing distances from a small lake, the last being 140m from the lake. Three quadrats of 10m x 10m were laid out at random points along each transect. The importance values of both pine species and blackgum increased with distance from the lake, whereas the opposite was true for red maples. Nearest neighbor calculations show all species arranged relatively randomly. Blackgum was the most randomly arranged species, followed by loblolly pine, then shortleaf pine, and the least random of the four species was red maple, which showed a slight tendency to a uniform distribution..
Dialects of *Corvus brachyrhynchos*: Georgia Webb* and Dr. Robert Paul

*Department of Biological and Physical Sciences, College of Science & Mathematics*

During the last forty years the study of animal vocalizations has been revolutionized by the development of high quality recordings and the spectrographic / sonogram analysis of sounds (Thorpe, 1961). A recent follow up study was conducted by a KSU student in which data from recorded vocalizations in three different groups of *Corvus brachyrhynchos* were collected and statistically analyzed using spectrogram software. In addition, chi-square tests for independence of behaviors associated with playback experiments were preformed to test the hypothesis...*Corvus brachyrhynchos* use dialects or a "shared group repertoire" as a means of same group / different group recognition. Results showed statistical differences in behavior and timing elements of song suggesting each of the different group’s song serve as an intra group bonding mechanism, thus, supporting the hypothesis tested.
Selection and Cloning of Cadmium Tolerant Mutants of C-Fern: Alicia Saran*, Josh Self* and Dr. Dale Vogelien

Department of Biological and Physical Sciences, College of Science & Mathematics

This study initiated a long-term project that uses the model plant system Ceratopteris richardii (also known as C-Fern) to examine the physiological mechanisms and genetic basis of enhanced cadmium (Cd) tolerance in plants. The effect of increasing levels of Cd on spore germination and gametophyte growth were documented in order to determine a Cd concentration to use in the selection of mutants possessing enhanced tolerance to Cd. To examine the effect of Cd on spore germination, sterile spores were sown directly onto nutrient medium containing 0, 0.5, 5, 12.5, 25, 50, 75, 100, 150 and 200 µM CdCl₂. CdCl₂ concentrations of 50 µM and above significantly reduced spore germination by 25 % or more. An EC₅₀ of 125 µM was noted, and almost complete inhibition of spore germination (98%) was achieved at 200 µM. To examine the effect of Cd on gametophyte growth, young cordate gametophytes were transferred from unsupplemented nutrient medium to media containing increasing levels of CdCl₂. Growth was assessed nine days after transfer. The lowest Cd concentration examined, 12.5 µM, resulted in a 65% reduction in gametophyte growth relative to the 0 µM control. CdCl₂ concentrations of 150 µM and above completely inhibited gametophyte growth. Selection of gametophytes showing enhanced tolerance to Cd was accomplished by mutagenizing spores with ethylmethylsulfonate and sowing them onto nutrient medium supplemented with 125 µM CdCl₂. Nineteen gametophytes were obtained from the mutant selection system. Seven produced sporophytes when self-fertilized. Of these 7 sporophytes, only one (Cdt1) survived transplantation to soil. Cdt1 has been cloned to produce over a dozen plants that will yield plant material (e.g. spores) for use in future analyses. If the Cdt1 mutation proves to be a single gene nuclear mutation conferring enhanced tolerance to Cd, it will be valuable for use in comparative studies with the sensitive wild type and could shed light on how contributing mechanisms interact in a way that translates into an effective strategy(s) for metal tolerance. In addition, mutants such as Cdt1 are the stock for identifying genes associated with enhanced tolerance.
Factors Affecting Short-term Water Quality Changes in Lake Allatoona: Jason Weinberger* and Dr. Joseph Dirnberger

Department of Biological and Physical Sciences, College of Science & Mathematics

Traditional water quality monitoring is completed on daily, weekly, or monthly routines. It is possible that this sampling schedule misrepresents actual water quality conditions. The automated collection of near-continuous water quality data reveals some of the biases that traditional sampling may overlook. Dissolved oxygen and other water quality parameters were monitored at 15-minute intervals for approximately 3 months in the summer of 2002. Light, wind and anthropogenic events have been known to affect water quality over larger temporal scales. A finer sampling resolution reveals that photosynthesis within the lake community drives dissolved oxygen changes during cloudless and partly cloudy daytime periods. However, below a certain threshold of light (at night and on cloudy days), wind mixing and atmospheric diffusion of oxygen have measurable effects on dissolved oxygen levels, obscuring changes due to photosynthesis and respiration. Based on day-of-the-week comparisons, anthropogenic events appeared to influence certain water quality parameters, but not dissolved oxygen.
Effects of Urbanization on Fishes of the Etowah Watershed: Nathan Mulkey* and Dr. William Ensign

*Department of Biological and Physical Sciences, College of Science & Mathematics

Freshwater fish diversity in the southeastern United States is higher than in any other region of North America. However, of the 662 species of freshwater fish found in the southeast region, over 28% have special conservation status, indicating their populations have declined or are declining significantly. Although there are numerous factors leading to this decline, urbanization and the associated reduction in habitat quality is a primary factor. In this study, we assessed the effects of urbanization on the diversity of fishes in 28 small streams (watershed areas <1800 hectares) in the Etowah River watershed. Two attributes of fish community structure, species richness and reproductive guild structure, served as response variables while the percent of the watershed in urban land cover served as the independent variable. Results indicated that overall species richness declined only slightly in urbanized watersheds (Spearman's \( r = 0.1350 \)). There was a significant shift in reproductive guild structure as species that do not invest parental care in their offspring were less common in urbanized streams (Chi-square, \( p = 0.0105 \)). In contrast, species that invest parental care (i.e. nest-builders, brood-guarders) showed no shift in occurrence as a function of urbanization (Chi-square, \( p > 0.05 \)). Our results indicate that initial changes in fish community structure associated with urbanization might not be reflected by measures of species richness, but will be evidenced if the ecological structure of the community is examined.
A Synthetic Procedure for (Dicyanomethylene) Acenaphthene: Addressing Structural and Energetic Issues: Nicholas M. Marshall*, Dr. Kevin P. Gwaltney and Dr. Brian Wesley Williams

Department of Chemistry and Biochemistry, College of Science & Mathematics

Fluorescent organic molecules are of interest in a variety of applications including dyes, non-linear optical materials and potential emitting layers for computer displays. In order to better understand fluorescence and fluorescent molecules, we synthesize novel compounds, and measure their absorption and emission spectra. We then compare the spectra to those that have been previously measured in this research group as well as data found in the literature. The synthesis of (dicyanomethylene)acenaphthene has proven to be a significant challenge. Attempts to synthesize (dicyanomethylene) acenaphthene will be presented along with characterization of precursors by absorption spectroscopy and emission spectroscopy as well as NMR and IR.
Analysis of Medicinal Drugs for Acetaminophen: Jilliann M. Wiese and Dr. Huggins Z. Msimanga

Department of Chemistry and Biochemistry, College of Science & Mathematics

A theoretical approach was used to understand the limitations of standard addition method (SAM). The theory was then applied to the analysis of tylenol and migraine relief tablets. A Cary 100 UV/VIS was used to measure absorbances, while a DX-600 Dionex HPLC, equipped with AD25 variable wavelength detector, was used for acquiring chromatograms. All solutions and the mobile phase were prepared in 50% aqueous methanol. Tylenol, which contains acetaminophen and aspirin, was easily analyzable via SAM. Aspirin has an absorptivity coefficient of 616 L.mol-1.cm-1 at 280 nm, while acetaminophen shows an absorptivity coefficient of 1865 L.mol-1.cm-1 at the same wavelength. However, the migraine relief samples, which contain caffeine in addition to aspirin, were not analyzable by SAM. Caffeine has an absorptivity coefficient of 7663 L.mol-1.cm-1 at 280 nm, which therefore greatly interferes with acetaminophen. Thus HPLC was found to be a better choice for the analysis of migraine relief tablets.
Imazaquin, a new class of pre-emptive herbicides called imidazolinones, was characterized via cyclic voltammetry at a hanging mercury electrode versus silver/silver chloride reference electrode. Its structure contains –CO–, –NH–, –N=, and –COOH functional groups, which make this molecule a good candidate for a study via electrochemical techniques. At the mercury electrode, imazaquin shows three distinct reduction peaks. In an attempt to find out which functional groups are responsible for the reduction peaks, we have studied molecules with similar functional groups. Ammel 433A Trace Analyzer potentiostat was used to obtain voltammograms. Variations in scan rates show that for the two analyzable peaks, mass transfer is by diffusion-controlled processes. Variation of pH shows optimum conditions for maximum current response to be around pH 2.8. Cyclic voltammograms of compounds of similar structure seem to indicate that the peak at less negative reduction potentials is due to the carbonyl group outside the pyridine ring.
Polymeric Aluminum Kinetic Experiments Using A Cary 4000: Bridget N. Lemley* and Dr. Marina Koether

*Department of Chemistry and Biochemistry, College of Science & Mathematics

Aluminum polymeric species are suspected to be toxic in the environment and yet no substantial evidence exists to confirm this. A preliminary exercise on aluminum polymeric species would be their identification and quantification. The degradation of the polymeric species with “ferron” is known to follow first-order kinetics. Using a new Cary 4000, numerous kinetic experiments on solutions containing known concentration of the polymeric and monomeric aluminum were performed. The results described will provide an insight into the ability of the Cary 4000 and provide background and baseline data for the analysis of polymeric aluminum in the environment.
Adsorption Characteristics Of Copper: Ujuamara Umejiego* and Dr. Marina Koether

Department of Chemistry and Biochemistry, College of Science & Mathematics

Copper in the environment may be complexed, bound to clay or free ions. The environmental sink for copper in a waste stream is of interest due to its appearance in drinking water and its associated health risks. Protocols for the study of the adsorption of copper onto kaolin clay and charcoal (typically found in drinking water plants) have been developed. Initial studies involved using an Ion Selective Electrode for free copper ions and a variety of substrates. Subsequent studies have utilized the Flame Atomic Absorption Spectrometer for faster results. Adsorption characteristics differ depending on pH and ionic strength. These results will be presented.
Electrophoresis is a very valuable tool for biochemists, yet experiments using this technique are often not done in biochemistry labs due to time constraints. Protein structure is also a very important topic of interest in many disciplines, yet most undergraduate lab experiments focus only on primary structure due to time constraints and sophistication of techniques. However, preliminary information about quaternary structure can easily be determined using electrophoresis techniques in a 3-4 hour time-period. In Fall Semester 2002, students examined four proteins with the following subunit compositions: $\alpha$, $\alpha_2\beta_2$, $\alpha_4$, and $\alpha_2$. By using a standard curve and examining samples in the presence and absence $\beta$-mercaptoethanol, students were able to correctly determine that superoxide dismutase was the only protein examined with intermolecular disulfide bonds. Comparing the number and sizes of bands observed with literature values for molecular mass allowed students to determine the number of subunits in the protein.
Development of a Chromatographic Separation for the Purification of a Pediatric Anesthetic: Taylor Evers *, Jennifer Carpenter*, Heather Guerrero* and Dr. Anita Katti

Department of Chemistry and Biochemistry, College of Science & Mathematics

GW-430 is a pediatric anesthetic undergoing clinical trials for the determination of efficacy. In order for this new drug entity to be approvable by the Food and Drug Administration it is necessary to deliver a product that is greater than 95% pure and preferably, 97% pure. In order to meet this goal, a process purification method is being evaluated as a purification method to take the purity of the crude from 90% purity by HPLC to greater than 97% purity. The following steps were taken to develop a process chromatography method for the purification of AV-430. 1) Set up HPLC, 2) evaluate the performance of the preparative and analytical column by a plate count test, 3) perform screening runs on preparative column to determine preliminary conditions that maximize the separation of AV-1 from its impurities, 4) transfer the analytical method from industry to the university, and 5) perform experiments to evaluate the gradient conditions and purity.
Service Learning Using a College Freshman Chemistry Laboratory Class as a Georgia Adopt-a-Lakes Monitoring Group: Bradley S. Davis*, Dr. Marty C. Williams and Dr. Daniel J. Williams

Department of Chemistry and Biochemistry, College of Science & Mathematics

For the summer semesters of 2001 and 2002, a general chemistry laboratory class at Kennesaw State University was trained to serve as a Georgia Adopt-a-Lakes (AAL) monitoring group to collect data on a local subdivision lake in the northwest Atlanta area. The group was trained to collect and measure chlorophyll a samples, record Secchi depths, and do simple chemical analysis on water collected from the lake. An AAL representative from the Georgia Lakes Society assisted instruction. Chemical concepts and manual laboratory skills were incorporated into the specially designed curriculum. Students learned traditional laboratory methods and concepts in addition to the AAL service learning aspect, which was done for a local homeowners group in the subdivision where the lake is located. Due to the period at which the laboratory met during the summer of 2001 and general lack of interest, significant participation from the homeowner association was unattainable. Due to upstream apartment complex development, homeowner association interest and enthusiasm for the project increased significantly for the 2002 summer session although participation has yet to be seen. Surveys indicate student satisfaction with the AAL service learning aspect of the course, and pedagogical effectiveness of the approach is currently being assessed.
Can Cognitive Profiles Determine Success in Programming Principles I?: Tracy Guthrie* and Dr. Amy Woszczynski

Department of Computer Science and Information Systems, College of Science & Mathematics

Information systems (IS) educators continue to struggle with one constant in the computer programming classroom. Learning how to program is difficult, and failure and attrition rates in college level programming classes remain at an unacceptably high rate. Often, 50% of computer science majors fail to successfully complete programming principles courses, and these rates go even higher for information systems and math majors who sometimes must pass these courses to meet their degree requirements (Seise et al., 2003). Clearly, computer programming courses have high non-completion rates, but little research has addressed potential reasons for failure. Many educators simply assume that high failure rates are acceptable – that computer programming is difficult and some students simply “don’t get it.” Some researchers (e.g., Clark & Wheeler, 1994) have studied personality as a predictor of success in computer programming courses. However, no studies have attempted to gather cognitive profiles (Krause, 2000) and match performance to profile type exhibited. Krause’s work shows that students with identified profiles can apply certain study skills to improve the probability of success in the classroom. This research project identifies the primary cognitive profile in a sample of beginning programming students in a southeastern university during the Fall 2002 semester. Results indicate that there are differences in course performance based on cognitive profile type. Certain profiles may continue to have higher success rates in these courses. However, we also believe that if identified properly and provided with recommended study skills, student success rates can increase. This study also provides recommendations to reach consistently under-performing cognitive profile types.
A Comparative Study of Presence in Virtual Reality vs. Presence in the Real World: Lynn McKinnon* and Dr. Max North

*Computer Science & Information Systems; Virtual Reality Technology Laboratory, College of Science & Mathematics

Objective: The primary purpose of this research was to study and compare the relationship between the sense of presence in the virtual environment and the sense of presence in the physical world while experiencing the virtual world.

Method: There were two parts to the study, each consisting of thirty-five subjects. A moderately simple virtual plane environment was experienced while using a 6D head-tracking system and Head-Mounted Display. Participants were given a questionnaire after completing five minutes in the simulation.

Results: The Part I data indicated that participants felt almost equally present in the real world simultaneously with the virtual world. Sense of presence was slightly higher in the virtual world than the real world. Using a scale of 0-10, the total combined average of sense of presence was eleven. In Part II, sense of presence was again slightly higher than presence in the real world, and the total combined average sense of presence was thirteen.

Conclusion: The Part I results lead to a preliminary and interesting theory that a person's overall sense of the world actually increases slightly when put into a virtual environment. The Part II data supports the findings of Part I.
Applications of Discrete Mathematics in Computer Science: Manish Singh*, Richard Heck* and Dr. Tom Gooch

Department of Mathematics, College of Science & Mathematics

This project is a modern study of applications of discrete mathematics in computer science, especially computer implementations of certain algorithms. The project complements our current two mathematics courses on discrete modeling, and it is designed for students with strong interests and appropriate backgrounds in both mathematics and computer science. The project starts with a review and extension of some fundamental ideas in discrete mathematics and algorithms. This is followed by a survey of several topics in discrete mathematics, including logic, set theory, combinatorics, graph theory, combinatorial networks, and Boolean algebra. The emphasis is on applications in computer science, especially computer implementations of certain algorithms. With regards to the computer implementations of certain algorithms, the project uses a disciplined approach to software development, especially concerning the proper role of abstraction, as used in mathematics and computer science. This work is derived from a directed study on applications of discrete mathematics in computer science completed during the Fall 2002 semester.
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