



PROGRAM SCHEDULE

WITH

PROJECT ABSTRACTS AND DESCRIPTIONS

APRIL 18, 2008
DUPONT HALL

FREDERICKSBURG, VIRGINIA



**UNIVERSITY OF
MARY WASHINGTON**

The Centennial Celebration

Student Research and Creativity Day, April 18, 2008

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OPEN EXHIBIT

11:00 a.m. – 4 p.m.	duPont Gallery	<i>See description on page 6</i>
	Annual Student Art Exhibition, featuring competitively selected pieces from students who have completed work over the past year for courses in the Department of Art and Art History.	

PRESENTATION SCHEDULE

11:00 a.m. – 12:30 p.m.	duPont Hall 313	Program Chair: Mr. Joseph Di Bella
Presenters:	Davette Leonard (Studio Art), "Painting the Ephemeral with the Enduring" – <i>abstract on page 21</i>	
	Katherine Arens (Studio Art), "Exploration of Self Through Portraiture" – <i>abstract on page 6</i>	
	Stephanie Smith (Studio Art), "Peruvian Street Boys Wall Installations" – <i>abstract on page 29</i>	

11:00 a.m. – 12:30 p.m.	duPont Hall 324	Program Chair: Dr. Claudine Ferrell
Presenters:	Philip Arnone (Sociology), "Terrorism as Political Violence" – <i>abstract on page 7</i>	
	Sabrina Askari, Sarah Axelson, Samantha Staebell (Psychology), "Young Adults' Ideal and Actual Expectations for Future Division of Feminine Chores Before and After Children" – <i>abstract on page 8</i>	
	Krishna Sinha (Business Administration), "Using Time Series Decomposition to Forecast Attendance of Historic Kenmore" – <i>abstract on page 29</i>	
	Erin Hogan (Education), "How Does the Early Introduction of Join-Start Unknown Problems Effect Students' Strategy Choices in Addition" – <i>abstract on page 17</i>	

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PRESENTATION SCHEDULE

12:45 – 2:15 p.m.	duPont Hall 313	Program Chair: Dr. Susan Matts
Presenters:	Damon Lowery (Biology), "The Study of Ecological and Vegetation Responses Resulting from Two Dam Removals in a Tidal Wetland System" – <i>abstract on page 22</i>	
	Tanima Hoque (Biology), "Effect of Seed Predation on the Population Density of <i>Aeschynomene virginica</i> " – <i>abstract on page 17</i>	
	Katherine Mulrey (Physics), "Physics of Model Airplanes" – <i>Abstract on page 23</i>	
	Jonathan Pollak (Geography), "Towards a Digital Campus" – <i>abstract on page 27</i>	

12:45 – 2:15 p.m.	duPont Hall 324	Program Chair: Dr. Terry Kennedy
Presenters:	Michael Man (Anthropology), "The Liberty Way: The Performance of Belief in a Southern Baptist University" – <i>abstract on page 23</i>	
	Andrew Uyehara (Anthropology), "Where Do Franks Belong?: The Liminality of Food at Ballparks" – <i>abstract on page 30</i>	
	Nichole Hudson (Anthropology), "Wigwams and WiFi: Conflicting Images at the National Museum of American Indian" – <i>abstract on page 18</i>	
	Molly Hendricks (Business Administration), "Socially-Responsive Funds, Investor Friendly?" – <i>abstract on page 16</i>	

12:45 – 2:15 p.m.	duPont Hall 209	Program Chair: Dr. Thomas Fallace
Presenters:	Ellie Tiemann (Education), "Investigating History Through Cultural Universals" – <i>abstract on page 30</i>	
	Elizabeth Bromley (Education), "Using Readers Theater in a Kindergarten Classroom" – <i>abstract on page 10</i>	
	Mary Hester, Colin Biddle, Laura Gumkowski, and Nikole Wellman (History), "James Farmer Digital History Project" – <i>abstract on page 17</i>	
	Maggie O'Toole (Spanish/Psychology), "The Promised Land: A Short Story" – <i>abstract on page 26</i>	

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PRESENTATION SCHEDULE

2:30 – 4:00 p.m.	duPont Hall 313	Program Chair: Dr. Janusz Konieczny
Presenters:	Amy Benjamin, Shannon Hauser, Whitney Holcomb, Jennifer Feldhaus, and Elizabeth Weaver (History), "Historical Markers: History That You Pass Everyday" – <i>abstract on page 9</i>	
	Kelly Wuyscik, Andrea Meyer, Lisa Meissner, and Talya Halpern (History), "The James Monroe Papers" – <i>abstract on page 32</i>	
	Molly Hendricks (Business Administration), "International Marketing: The Trinidad Perspective" – <i>abstract on page 16</i>	
	Juliann Boyles, Austin Cobb, Matthew Downs, Roxanne Ibinson, and Kellye Sorber (History), "UMW Alumni Oral History Interview Database/Website" – <i>abstract on page 9</i>	

2:30 – 4:00 p.m.	duPont Hall 324	Program Chair: Dr. Debra Steckler
Presenters:	Robert Lynn (Studio Art/Art History), "Realism Meets Abstraction in Contemporary Painting/Drawing" – <i>abstract on page 23</i>	
	Eric Norman (Studio Art), "Post Modern Painting" – <i>abstract on page 25</i>	
	Erin O'Donovan (Psychology/Studio Art), "Mood Over Matter: Can Happiness Be Your Undoing?" – <i>abstract on page 25</i>	
	Justin Simeone (History), "American War Crimes Advocacy from Leipzig to Nuremberg: The Social, Legal, and Political Origins of International Criminal Legalism, 1919-1939" – <i>abstract on page 28</i>	

2:30 – 4:00 p.m.	duPont Hall 209	Program Chair: Dr. Karen Anewalt-Cockrell
Presenters:	Juliette Zerick (Mathematics/Computer Science), "Computational Characterization of Basin Boundaries" – <i>abstract on page 32</i>	
	Nicholas Odhiambo and Roger Lamb (Computer Science), "Parole Office Web-based GIS Tracking Application" – <i>abstract on page 24</i>	
	Rebecca Voglewede (Business Administration), "How Does Wal-Mart Do It? An Examination of Recent Financial Performance" – <i>abstract on page 30</i>	
	Rebecca Henderson (Anthropology, Linguistics), "Oral Narratives of the High Atlas: A Sociolinguistic Perspective" – <i>abstract on page 15</i>	

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PRESENTATION SCHEDULE

1:00 – 4:30 p.m.	Melchers Hall 107	Art History Individual Study Projects
Presenters:	Dana Byrd , "Hermes and Dionysos...By Praxiteles? A Quest for Attribution" – <i>abstract on page 11</i>	
	Heather Carey , "The Influence of "Orientalism" in Nineteenth-Century French Painting: Ingres and Delacroix" – <i>abstract on page 11</i>	
	Kerry Gavaghan , "Portrait of a Family: Dutch Paintings in the Seventeenth Century" – <i>abstract on page 14</i>	
	Emily Harrawood , "Painting and Prayer: The Influence of Counter-Reformation Rome on Caravaggio's Monumental Paintings" – <i>abstract on page 15</i>	
	Alexis Hovanesian , "The Heroic Myth of the New Soviet Man and Woman in Socialist Realist Art Under Stalin, 1932-1953" – <i>abstract on page 18</i>	
	Elizabeth Huff , "Vittore Carpaccio's Narrative Cycle of St. Ursula and Its Venetian Influences" – <i>abstract on page 19</i>	
	Rebecca Kraushaar , "A 'Wildly Eccentric' Undertaking: Charlotte Salomon's Life? or Theatre?" – <i>abstract on page 20</i>	

POSTER AND DISPLAY SCHEDULE

11:00 a.m.- 12:30 p.m.	Session #1	duPont Hall, second floor
Presenters:	Juliana Brown (Chemistry), "STM Studies of Coadsorption of Liquid Crystals on Graphite" – <i>abstract on page 10</i>	
	Layton Kuchinski (Theatre), "Dressing Constance: A Costume Technology Project from She Stoops To Conquer" – <i>abstract on page 20</i>	
	Samantha Davis (Chemistry), "Liquid Crystal Synthesis and Characterization" – <i>abstract on page 12</i>	
	Jonathan Williams (Chemistry), "Photochemical Fate of Biodiesel Spills" – <i>abstract on page 31</i>	
	Matthew Gallo (Geography), "Developing a GIS database for the city of Fredericksburg" – <i>abstract on page 14</i>	
	Donna Weber (Theatre), "Stage Managing Of A Funny Thing Happened On The Way To The Forum" – <i>abstract on page 31</i>	
	T. Morgan Riley (Historic Preservation), "Is This the Right Room?": An Analysis of Shifts in the Function of Spaces at the Mary Washington Campus: 1911 - 1941" <i>abstract on page 27</i>	
	Lindsay Easley (Theatre), "Scenic Art: She Stoops to Conquer" – <i>abstract on page 13</i>	
	Rebecca Funkhouser and Jennifer Yox (Chemistry), "Progress in the development of protecting group strategies for alkylguanidines" – <i>abstract on page 13</i>	

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POSTER AND DISPLAY SCHEDULE

12:45 - 2:15 p.m.	Session #2	duPont Hall, second floor
Presenters:	Erika Kamptner, Alexandra Mueller, and Michael Ford (Geology), "Stream Water Quality, Sediment Chemistry, and the Macroinvertebrate Population in a Steam Draining Abandoned Pyrite and Gold Mines in Louisa County, Virginia" – <i>abstract on page 19</i>	
	Katherine O. Oldham (Environmental Sciences), "Monitoring the Storm Water Management Ponds of the Central Park Development and an Off-Site Wetland Mitigation Project" – <i>abstract on page 25</i>	
	Emma Clarkson (Biological Sciences), "Macroinvertebrate Biodiversity across Land Use in Sub Watersheds of the Rappahannock River" – <i>abstract on page 12</i>	
	Jenae Pinney and Rebecca Shapiro (Chemistry), "The Effect of Land Use on the Nutrients and Organic Contaminants in the Water and Sediment of the Rappahannock River" – <i>abstract on page 26</i>	
	Molly Barber, Andrew Uglow, and Bryan Clark (Geology and Environmental Sciences), "Sea Level History of the Rappahannock Estuary" – <i>abstract on page 8</i>	
	Evan P. Anderson (Geology), "Analysis of Fossil-Bearing (?) ~ 570 Ma Rocks from Boston Bay, MA" – <i>abstract on page 6</i>	
	Sherin V. Stephen (Physics), "Physics of Model Airplanes" – <i>abstract on page 29</i>	

2:30 - 4 p.m.	Session #3	duPont Hall, second floor
	Kelly Landau (Environmental Science), "Application of Cs-137 in Soil Erosion Analysis" -- <i>abstract on page 20</i>	
	Gayle Armentrout and Virginia Brown (Chemistry and Environmental Science), "Sediment Influx Rates and Trace Metal Analysis for Lake Anna" -- <i>abstract on page 7</i>	
	Mary Pilger (Physics), "Study of Nitrogen Afterglow Emissions in a Molecular Beam Discharge" – <i>abstract on page 26</i>	
	Davis Hand (Physics), "New Automated Contact Resistance Test Station" – <i>abstract on page 15</i>	
	Christopher Lowery and Scott Smith (Environmental Sciences), "The Viability of Ostracoda as Proxies for Pleistocene-Holocene Climate Change at Mono Lake, California" – <i>abstract on page 21</i>	
	Amy Carfagno (Chemistry), "Investigating the Basis of Natural Organic Matter Photochemistry" – <i>abstract on page 11</i>	
	Joseph McMahon (Business), "The Facebook Effect" – <i>abstract on page 24</i>	
	Claire Tamaccio (Geography), "Mapping with Mobile GIS: Alum Spring Park, Fredericksburg" – <i>abstract on page 29</i>	
	Caitlin Lucia (Theatre), "Far Away Stage Management" – <i>abstract on page 22</i>	

duPont Gallery (Display)

“Annual Student Art Exhibition”

For this showing, students were allowed to submit up to 5 works completed after May 2007. An outside Juror selected by the Art and Art History Faculty to choose works to be exhibited in the show. Dr. Howard Risatti, Professor Emeritus of Art History was the juror of the show and also chose the pieces to receive awards.

Katherine Arens
ART AND ART HISTORY DEPARTMENT (Oral Presentation)
Faculty Mentor: Mr. Joseph Di Bella

“Exploration of Self Through Portraiture”

Abstract

The investigation of self has been the focus of my painting for the past year. Much of my work investigates my attitude towards life; I believe in an ultimate good. My paintings exhibit a very deliberate sense of self while examining an often unsettling or confusing world. Conceptually, I allow the paintings to develop as I work on them; the format and technique are experimental.

Evan P. Anderson
EARTH AND ENVIRONMENTAL SCIENCES DEPARTMENT (Poster)
Faculty Mentor: Dr. Jodie Hayob

“Analysis of Fossil-Bearing (?) ~ 570 Ma Rocks from Boston Bay, MA”

Abstract

Rocks from the Cambridge formation in Boston Bay contain ring-like structures, interpreted to be fossils of the late Proterozoic (540- 640 mya) organism *Aspidella* (e.g., Billings, 1872; Bailey & Bland, 2001). Cross-sections through these structures contain thin, dark, seemingly opaque layers interpreted as pyritized biomats (Baily & Bland, 2001) that entombed the *Aspidella*, or perhaps as actual organic remains of *Aspidella*. In this study, multiple thin sections of three rocks from different Boston Bay localities were studied with a polarizing microscope under both transmitted and reflected light (50x-400x), and with a scanning electron microscope (SEM) at $\leq 5,000x$ equipped with energy dispersive spectrometry (EDS) to acquire elemental spectra. Reflected light microscopy reveals the dark layers are not pyrite, as they are not highly reflective or truly opaque. Furthermore, EDS analysis indicates the dark laminae contain neither sulfur, necessary for pyrite (FeS_2), nor carbon, indicative of directly preserved organic material. Pyrite framboids, possibly of organic origin, were found in samples from one of the study sites but none were actually within *Aspidella* structures or the dark laminae. This pyrite is bright yellow in reflected light, and EDS confirms the abundance of sulfur and iron. In conclusion, we do not support the interpretation of the dark laminae as pyritized biomats. All evidence indicates that these layers are a mixture of fine-grained dark minerals that are non-opaque.

Gayle Armentrout and Virginia Brown
CHEMISTRY AND EARTH AND ENVIRONMENTAL SCIENCE DEPARTMENTS (Poster)
Faculty Mentor: Dr. Leanna Giancarlo and Dr. Ben Odhiambo Kisila

“Sediment Influx Rates and Trace Metal Analysis for Lake Anna”

Abstract

Inundation in 1972 formed Lake Anna, a popular recreation site in Spotsylvania and Orange counties, Virginia. Based on previous studies, increased concentrations of polychlorinated biphenyls (PCBs) were found in fish. In order to study the history of PCB influx in the lake by sediments, cores were taken from specific locations. The source of PCBs in the lake is unknown; the study will provide applicable information about possible upland erosion and source sites. In addition, trace metal analysis was completed on 3 of the coring sites: core 1 located at the upper part of the lake, core 4, which is more centrally located, and the lagoon core 2, at the bottom near the Dominion power plant. Each 2cm core segment was tested for the following metals: Al, Fe, Cu, Zn, Pb, Mn, Ca, and Ba, giving a fairly good outline of trace metal influxes. ^{210}Pb analysis on each sectioned core indicated the sediment accumulation rates. These analyses yielded a sedimentation rate of $0.16 \times 10^{10} \text{ g cm}^{-2} \text{ y}^{-1}$ within the lower lacustrine area and $1.57 \times 10^{10} \text{ g cm}^{-2} \text{ y}^{-1}$ in the deltaic upper reaches of the reservoir. The increasing ^{210}Pb levels from testing accurately show the sediment rate, which is steadily increasing in the lake, but not severe. However, the increased development in the surrounding watershed leaves the lake vulnerable to increased siltation and erosion with possible contaminant influxes. From the sedimentation graphs, it is clear to see the date of inundation and the change in sedimentation rates. Additionally, the graphs show sediments above 13cm represent all sediment influxes after 1972, when the lake was formed. This provides essential information about sediment age and aids in the chronological history of Lake Anna.

Philip Arnone
SOCIOLOGY AND ANTHROPOLOGY DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Kristin Marsh

“Terrorism as Political Violence”

Abstract

Terrorism is a very misunderstood and emotionally loaded topic, and the way it has been previously studied is conceptually flawed. Terrorists are rational actors whose actions are strategic choices as part of a political campaign. Through a comparative-historical study of the ANC, the IRA, and Hamas I will show how these groups utilize violence as part of an expanded repertoire of contention to represent the claims of their constituents. Terrorism is more likely to occur when terrorists' constituents have been marginalized by the state and political establishment, which increases the social distances between the actors involved. The type of violence terrorists' employ can be predicted by the social distance separating the actors and the degree of complicity of civilians supporting the target regime of the terrorists' campaign. If increasing social distance through closing of the political process and marginalization of the terrorists' constituents increase the chances of terrorist violence, then an opening of the political and social system to the marginalized constituency of terrorists will create incentives for terrorists to give up the armed struggle and utilize peaceful strategies of contention.

Sabrina Askari, Sarah Axelson, and Samantha Staebell
PSYCHOLOGY DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Mindy J. Erchull and Dr. Miriam Liss

“Young adults' ideal and actual expectations for future division of feminine chores before and after children”

Abstract

This study explored whether or not there is a discrepancy between young adults' ideal and actual expectations for participation in stereotypically feminine chores before and after having children as well as in childcare chores. This study also examined what predicts expecting a gap between ideal and actual participation and willingness to perform chores. We hypothesized that expected work-family conflict would predict a gap between ideal and actual participation. We also hypothesized that the perceived likelihood of finding a partner willing to do these chores would influence the ideal-actual gap and willingness to do chores. Participants were recruited on-campus and through online recruitment. They completed an online questionnaire. Perceived likelihood of finding a family-oriented partner predicted the ideal-actual gap for chores above and beyond sex. Overall, women expected a bigger ideal-actual gap for all chore categories.

Molly Barber, Andrew Uglow, and Bryan Clark
EARTH AND ENVIRONMENTAL SCIENCES DEPARTMENT (Poster)
Faculty Mentor: Dr. Neil Tibert

“Sea level history of the Rappahannock Estuary”

Abstract

Rates of sea level rise in the Chesapeake Bay exceed the global average attributed to receding continental ice sheets. A marsh core collected from the Rappahannock Estuary (a tributary to Chesapeake Bay) was analyzed for microfossil composition, magnetic susceptibility, loss-on-ignition, and radiocarbon geochronology. A sonar device was used profile the spatial distribution of the Holocene sedimentary cover at the core locality. Our primary objective was to establish a millennial sea level history for the Rappahannock Estuary and to identify a possible forcing mechanism. There are two primary facies observed in the 7 meter core collected at Blandfield Point, Virginia. Facies 1 (central estuarine clay) comprises silty grey mud with minor quartz sand, abundant diatoms, ostracodes, and sparse plant material. Facies 2 (upper estuarine marsh) comprises a relatively high percentage of organic carbon with localized quartz sand intervals and relatively abundant agglutinated foraminifera. Radiocarbon dates indicate a middle Holocene age (~5100 years before present) at the base of the 7 meter core. The transition from predominantly estuarine to marsh facies is characterized by a rhythmic alternation between the marsh and central estuarine sediments. We identify 5 sedimentary cycles of relative sea level change spanning the 5100 years that yields an approximate 1000 year periodicity with meter scale base level amplitude. Using sub-bottom chirp seismic profiling equipment, we surveyed Tappahannock harbor such that there is observed stratal thinning in the proximity of sub-vertical acoustic reflectors.

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Amy Benjamin, Shannon Hauser, Whitney Holcomb, Jennifer Feldhaus, & Elizabeth Weaver
HISTORY AND AMERICAN STUDIES DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Jeff McClurken

“Historical Markers: History That You Pass Everyday”

Abstract

Our “Historical Marker Project” was a semester-long project. Our objective was to create a functional website containing the Fredericksburg, Stafford County, and Spotsylvania County Historical Highway Markers of Virginia. For each marker, we provide extended research and further reference material for history enthusiasts. All in all, we researched and summed up 70 markers in and around the Fredericksburg, Virginia area.

In addition to this research, we also created a timeline chronicling the markers’ events. The timeline includes a brief history of the Virginia Marker Program itself, conducted by the Virginia Department of Historic Resources, and includes links to other sites that document the markers.

Additionally, we took photographs to portray the marker contents; specifically we focused on what structures and buildings are still standing today.

Juliann Boyles, Austin Cobb, Matthew Downs, Roxanne Ibinson, and Kellye Sorber
HISTORY AND AMERICAN STUDIES DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Jeff McClurken

“UMW alumni oral history interview database/website”

Abstract

In celebration of the Centennial Anniversary, this website creates a digital storyline of the history of the University of Mary Washington through the perspective of the alumni of the institution. Using an oral history approach, we have conducted interviews with alumni of different eras and created profiles of each interviewee, including a transcribed record of each interview. As an alternative way to look at the school's history, we have also created a timeline of the key events, dates, and topics discussed in our interviews. We supplement these interviews with artifacts from the alumni and other primary source documents, such as yearbook photographs and school newspaper articles. The ultimate goal of this project is that, eventually, any graduate of the school can connect to this site and share their own stories and memories about the events that he or she felt were important during their time at Mary Washington.

Juliana Brown
CHEMISTRY DEPARTMENT (Poster)
Faculty Mentor: Dr. Leanna Giancarlo

“STM Studies of Coadsorption of Liquid Crystals on Graphite”

Abstract

This research project examined the adsorption of n-alkyl-cyanobiphenyl liquid crystals (nCBs) on the surface of highly ordered pyrolytic graphite (HOPG) via scanning tunneling microscopy (STM). It is predicted that the nCBs will exhibit an odd-even effect in which the fundamental molecule-molecule interaction is dependent upon the value of n. Images of 4'-pentyl-4-biphenylcarbonitrile (5CB), 4'-hexyl-4-biphenylcarbonitrile (6CB), 4'-heptyl-4-biphenylcarbonitrile (7CB), and 4'-octyl-4-biphenylcarbonitrile (8CB) on the surface of graphite have been obtained via STM; however, the images were not resolved enough to determine molecular alignment. Lattice constants were calculated in order to distinguish between HOPG and nCBs. A mixture of 7CB and 8CB and a mixture of 6CB and 8CB were also imaged, and future studies will examine the coadsorption of other varied mixtures. From the obtained images, self-assembly, as well as molecular interactions, can be studied. The phase transitions of the nCBs as the crystals transition from the smectic to the nematic to the isotropic phase were also explored.

Elizabeth Bromley
EDUCATION DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Dorothy Suskind

“Using Readers Theater in a Kindergarten Classroom”

Abstract

In this action research project I studied how using readers theater would influence the literacy development of emergent readers. Readers theater is a form of dramatic reading where participants read their parts from scripts, for an audience, and with appropriate enthusiasm and expression. Various literature has found readers theater to be beneficial in a classroom because it develops students' reading fluency, reading comprehension, and motivation to read. The project took place in a kindergarten classroom over a period of about six weeks. Students were grouped according to their reading ability levels and their reading progress was assessed using pre- and post-tests, student surveys, and filming of final performances. Though students' test scores showed inconclusive results, their ability to read aloud and perform noticeably improved as well as their motivation to read.

Dana Byrd
ART AND ART HISTORY DEPARTMENT (Presentation)
Faculty Mentors: Dr. Jean Ann Dabb

"Hermes and Dionysos...By Praxiteles? A Quest for Attribution"

Abstract

This paper is intended to be a comprehensive analysis of the wide-ranging scholarly opinions regarding the questionable attribution of the *Hermes and Dionysos* statue, excavated at Olympia, Greece in 1877. The work is generally attributed to Praxiteles, a fourth-century BC sculptor who worked in bronze and marble, however there is ample evidence which suggests this assumption is flawed. This paper addresses issues related to technique and style of Late Classical and Hellenistic sculpture in order to determine the style that is represented in the work, and where it belongs in the chronology of ancient art. Based on the evidence and opinions proposed by previous scholars, plus my own observations, a personal view of the work's attribution will be presented.

Heather Carey
ART AND ART HISTORY DEPARTMENT (Presentation)
Faculty Mentors: Dr. Jean Ann Dabb

**"The Influence of "Orientalism" in Nineteenth-Century French Painting:
Ingres and Delacroix"**

Abstract

The presentation will focus on defining the terms "Orient" and "Orientalism," and how Jean-Auguste-Dominique Ingres and Eugène Delacroix illustrated these definitions in their works. A closer examination of the artists' contrasting styles, even when depicting similar themes, will provide an interesting dynamic when considering Ingres's and Delacroix's different life experiences. The issues surrounding nineteenth-century European fantasies of the "Orient," and how these visions influenced ideas concerning exoticism and eroticism when depicting women in an "Orientalized" setting, will also be introduced.

Amy Carfagno
CHEMISTRY DEPARTMENT (Poster)
Faculty Mentor: Dr. Charles Sharpless

"Investigating the Basis of Natural Organic Matter Photochemistry"

Abstract

Natural organic matter (NOM) refers to the end products of algal and vegetation decomposition. NOM is present in all varieties of natural systems and exhibits complex and variable structure. The yellowish tint of some natural waters is in part due to absorption of sunlight by dissolved NOM, which results in production of reactive oxygen species such as singlet oxygen ($^1\text{O}_2$) and hydrogen peroxide (H_2O_2). Since $^1\text{O}_2$ readily oxidizes organic

pollutants, NOM interaction with sunlight provides natural pollution elimination. H_2O_2 affects the redox conditions of natural systems, thereby influencing the bioavailability of metals. An understanding of peroxide flux is thus a key aspect of environmental toxicology models. But why is NOM so photoreactive? The purpose of this project was to identify correlations between spectroscopic properties of NOM and the efficiency of H_2O_2 production. Such correlations provide clues as to the fundamental basis of NOM photochemistry.

Emma Clarkson
BIOLOGY DEPARTMENT (Poster)
Faculty Mentors: Dr. Abbie Tomba

“Macroinvertebrate Biodiversity across Land Use in Sub Watersheds of the Rappahannock River”

Abstract

Maintaining the water quality of smaller sub watersheds in urbanizing areas is important to the health of larger water bodies. Other studies have demonstrated that land use within a watershed can influence water chemistry, by altering nutrients, specific conductance, and turbidity, as well as stream biota. In this study we compared the water chemistry and macroinvertebrate biodiversity of six sub watersheds of the Rappahannock River in northeastern Virginia representing 3 different land uses (forested, agriculture and urban). ArcGIS 9.0 and Digital Orthophoto Quadrangles (DOQs) were used to determine land use for each watershed. At each sub watershed macroinvertebrates were sampled at 3 pools and 3 riffle/runs, with 3 surber samples taken at each habitat unit. We also collected environmental data at each sub watershed including shade, dissolved oxygen, current speed, pH, substrate size, temperature and conductivity. Several biological metrics were calculated to characterize the invertebrate community including diversity, richness, evenness, density, and %EPT (ephemeroptera, plecoptera, trichoptera). We found that in general, forested sites had the highest biodiversity, agricultural sites had the second highest biodiversity, and urban sites had the lowest biodiversity. In addition to lower diversity urban streams were dominated by pollution tolerant taxa (primarily Chironomidae).

Samantha Davis
CHEMISTRY DEPARTMENT (Poster)
Faculty Mentors: Dr. Roy F. Gratz and Dr. Leanna C. Giancarlo

“Liquid Crystal Synthesis and Characterization”

Abstract

Liquid crystals are substances that have an intermediate ordered phase between conventional solid and liquid phases. This intermediate phase, or mesophase, has become vastly useful in modern electronics and is utilized in liquid crystal displays (LCDs). The purpose of this research is to synthesize and characterize new molecules containing two 1,2,4-oxadiazole groups and to test them for liquid crystalline behavior as well as characterize the surface of any synthesized molecules with scanning tunneling microscopy

(STM). 1,4-Bis(5-heptyl-1,2,4-oxadiazoyl)benzene has shown promise as a liquid crystal and may have a unique banana shape to the molecule when observed with STM.

1,4-Bis(5-heptyl-1,2,4-oxadiazoyl)benzene was synthesized in a two step reaction. Terephthalonitrile was reacted with four equivalents hydroxylamine in ethanol to generate terephthalamidoxime which was then reacted with two equivalents octanoyl chloride in DMF to produce 1,4-bis(5-heptyl-1,2,4-oxadiazoyl)benzene. Using a polarized microscope the molecule exhibited liquid crystal properties in the form of an anisotropic phase.

Lindsey Easley
THEATRE AND DANCE DEPARTMENT (Display)
Faculty Mentor: Mr. David Hunt

"Scenic Art: She Stoops to Conquer"

Abstract

For my Senior Project I was the Scenic Artist for the UMW Production of "She Stoops to Conquer" by Oliver Goldsmith. I painted almost all the primary set pieces including but not limited to, a portrait that hangs for most of the play and all of the brick walls.

Rebecca Funkhouser and Jennifer Yox
CHEMISTRY DEPARTMENT (Poster)
Faculty Mentor: Dr. Janet Asper

"Progress in the development of protecting group strategies for alkylguanidines"

Abstract

The guanidine functional group has attracted increasing attention from biological, medicinal, and organic chemists due to its prevalence in many biologically occurring molecules and pharmaceutical compounds. Alkyl guanidines are strongly basic, requiring protecting groups to allow the synthesis and handling of alkylguanidines in organic solvents. Our group has been developing new methods for the synthesis of alkylguanidines, including solid phase deprotection of Boc protected alkylguanidines and development of a new guanidine protecting group which includes a polymer support suitable for liquid phase organic synthesis (LPOS). Recent progress in both projects will be discussed.

Matthew Gallo
GEOGRAPHY DEPARTMENT (Poster)
Faculty Mentor: Dr. Brian Rizzo

"GIS Applications working with the City of Fredericksburg"

Abstract

A recent survey of counties and cities in Virginia suggests that 60% have some GIS capability. Fredericksburg, like many smaller counterparts (including smaller counties), finds itself on the short side of this statistic. The issue for Fredericksburg and other smaller cities and counties comes down to a combination of financial limitations and the lack of in-house expertise. With little to no in-house knowledge of the application and uses of GIS technology there is a high degree of reluctance to "buy in" to the technology due to the uncertainty surrounding its success or failure. In an effort to help bridge the knowledge gap and reduce this uncertainty, Geography students have partnered with members of various city departments in an effort to jump start the development of a GIS database. These initiatives were carried out through internships, which paired students with city officials from various departments. This presentation will highlight the methodology, equipment and application tools that were used to capture store and build a series of geographic layers for various city assets and discuss how this relationship benefited both the student and the city.

Kerry Gavaghan
ART AND ART HISTORY DEPARTMENT (Presentation)
Faculty Mentors: Dr. Marjorie Och

"Portrait of a Family: Dutch Paintings in the Seventeenth Century"

Abstract

In this individual study, I have attempted to describe and define the Dutch nuclear family as a unique unit with certain characteristics that make it the ancestor to our "modern family." First, I have examined seventeenth-century moral treatises by writers such as Jacob Cats, who wrote mainly about the family and marriage. I have also studied literature about the history of the European family, in terms of how parents raised and related to their children. Child-rearing has been a divisive issue among scholars with one camp alleging that early modern parents were harsh and apathetic and the other countering that those parents were loving and affectionate towards their children, which is the view that is taken here. In order to relate family history to Dutch art, I have considered genre scenes that portray families along with family portraits by painters such as Hals, Maes, de Hooch, Metsu, and Steen.

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Davis Hand
PHYSICS DEPARTMENT (Poster)
Faculty Mentor: Dr. Susan Matts

"New Automated Contact Resistance Test Station"

Abstract

The performance of electronic circuits is strongly dependent upon the electrical properties of the individual circuit components. Certain material combinations can increase heat generation and power consumption. To minimize these effects, careful material selection is required. For my research, I decided to study metal/semiconductor combinations that may be effective in high temperature, high voltage power supply applications. This required designing a microelectronic test station and developing new test control software used to determine the electrical properties (I-V Characteristics) of metal to semiconductor contacts. Aluminum on n-type silicon was used to optimize the experiment in preparation for new material selections.

Emily Harrawood
ART AND ART HISTORY DEPARTMENT (Presentation)
Faculty Mentors: Dr. Jean Ann Dabb

"Painting and Prayer: The Influence of Counter-Reformation Rome on Caravaggio's Monumental Paintings"

Abstract

Baroque painters are revered for the ability to engage a viewer in their painting, a skill for which Michelangelo Merisi da Caravaggio possessed exceptional talent and innovation. This particular quality made his paintings excellent companions to the newly popularized reform trends of the Catholic Church, specifically the Jesuit and Oratorian Orders, which emphasized visualizing and meditating on religious scenes. Since Walter Friedlaender published his collection entitled *Caravaggio Studies* in 1955, historians have explored the influence of Counter-Reformation ideas on Caravaggio's dramatic and monumental paintings. This study explores Caravaggio's religious influence from two sources: his most prominent patrons and two local saints who wielded widespread influence in early 17th-century Rome.

Rebecca Henderson
ENGLISH, LINGUISTICS, AND SPEECH DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Christina Kakava

"Oral Narratives of the High Atlas: A Sociolinguistic Perspective"

Abstract

The analysis of performance narratives or oral art is located within the domains of a number of different fields. Anthropologists, literary theorists, and folklorists have all analyzed traditional stories, examining their qualities as works of art, literature, or cultural products.

This project seeks to expand the role that linguistics plays in this discussion, looking at these oral narratives as culturally located speech acts. I will examine several traditional narratives collected from Amazigh women in the village of Amellago in the High Atlas Mountains of Morocco using sociolinguistic methodology. These traditional domestic narratives have never been examined before, despite attention to more public Amazigh verbal art such as songs and poetry. This paper will seek to determine the ways in which these narratives are constructed and made effective as performance through their use various linguistic strategies including narrative structure, repetition and rhythm. It will also attempt to place the analysis of these narratives within the larger context of research done on oral narratives more generally, drawing together work from disparate perspectives in the hopes of creating a more unified methodology of oral art.

Molly Hendricks
BUSINESS ADMINISTRATION DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Galen deGraff

“Socially-Responsive Funds, Investor Friendly?”

Abstract

According to the Business Ecology Model, business and society have a symbiotic relationship where companies take input from certain groups and from these sources produce their end product. During this process firms impact the social environment in six areas, one being the physical environment. Society then responds to the impacts businesses create by providing them with feedback and the cycle continues. Recently, society has begun to place increasing demands on businesses to be more socially-responsive. As a result, more investment houses are launching socially-responsive mutual funds. Do companies pay a price for being socially-responsive? This study investigated whether shareholders receive substandard returns when they invest in these socially-responsive funds by comparing the financial performance of the mutual funds to the overall market represented by the S&P 500.

Molly Hendricks
BUSINESS ADMINISTRATION DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Carole Ann Creque

“International Marketing: The Trinidad Perspective”

Abstract

International trade is growing, fueled by technological advances, globalization, and trade liberalization. Since trade across nations has become easier and more common, companies have to look overseas in order to maintain a competitive edge. Entry into foreign markets presents these companies with multiple obstacles, the foremost being cultural differences. With each new country comes new tastes, preferences, and ways of performing tasks. The most beneficial way to understand a country and its nuances is through first-hand experience.

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Mary Hester, Colin Biddle, Laura Gumkowski, and Nikole Wellman
HISTORY AND AMERICAN STUDIES DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Jeffrey McClurken

“James Farmer Digital History Project”

Abstract

The James Farmer Project at the University of Mary Washington is a student-led project in HIST 471C3: “Digital History” for Spring 2008 under the supervision of Dr. Jeffrey McClurken. The focus of this class is the combination of history and new media relating to local people and events. The James Farmer Project attempts to present the life and times of James L. Farmer as a civil rights leader and distinguished professor for the general public. This website is the culmination of our research using books, newspaper articles, letters, interviews, and speeches related to James Farmer.

Erin Hogan
EDUCATION DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Marie Sheckels

“How Does the Early Introduction of Join-Start Unknown Problems Effect Sudents' Strategy Choices in Addition?”

Abstract

While learning addition, students use various strategies. There are three types of addition strategies, direct modeling, counting on, and fact recall. Students will typically progress in their strategy choices, beginning at direction modeling and ending at fact recall, as they gain a concrete understanding of addition. Teachers strive to advance their students' problem solving strategies. Franke, & Kazemi (2001) suggested that one way of advancing students strategy choices is to introduce students to more difficult problems. In this research, first grade students were introduced to Join-Start Unknown addition problems in the hopes that it would advance students' strategies. It was found that this problem type was too advanced for many of the students. Students who used direct modeling and counting on strategies to solve addition problems were unable to solve this type of problem. In order to solve this problem type students must be able to have fact recall for both addition and subtraction problems.

Tanima Hoque
BIOLOGY DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Alan Griffith

“Effect of seed predation on the population density of *Aeschynomene virginica*”

Abstract

Aeschynomene virginica or sensitive joint-vetch is a federally threatened annual legume that is found in populations from southern New Jersey to central North Carolina. Potentially severe seed loss from herbivory has been observed in *A. virginica* populations, but not

measured. We studied the effect of population density on seed predation of *A. virginica* at the Vandell Preserve at Cumberland Marsh Preserve in New Kent County, Virginia. In September 2007, all known populations of *A. virginica* were sampled. We censused all plants in each population and measured the area covered by each population. We counted number of seeds produced and number of seeds eaten on ten randomly selected plants in each population. Seed predation rates were defined as either percent of seeds eaten per plant or average percent of seeds eaten in a population. We also measured the area and the number of plants in each population. Seed predation per plant increased as seed production per plant increased. Also seed predation rate increased with increased seed density in a population. Seed predation rate decreased as plant density in a population decreased. So there is a positive correlation between seed predation and plant density in SJV populations. Insect herbivory study is limited for freshwater wet land rare annuals, so this study of *A. virginica* acts as a role model to understand the ecology of rare plants.

Alexis Hovanesian
ART AND ART HISTORY DEPARTMENT (Presentation)
Faculty Mentors: Dr. Marjorie Och

“Painting and Prayer: The Influence of Counter-Reformation Rome on Caravaggio’s Monumental Paintings”

Abstract

Socialist Realist art was the only legally recognized style of art in the Soviet Union. Soviet government officials realized the importance of art as a tool of propaganda and utilized their power and control to show Soviet citizens a concrete vision of the promised Soviet life under socialism. Stalin understood that in order to make socialism a success it was imperative to have the entire artistic community support him and, by collaborating with popular Soviet author Maxim Gorky, Socialist Realism and the New Soviet Man and Woman were developed. The myth of the heroic New Soviet Man and Woman -- the youthful, hard-working athlete -- held all the qualities necessary to make a successful socialist state and became a popular theme in the arts. This paper discusses the development of Socialist Realist art and the New Soviet Man and Woman by looking at paintings, sculpture and literature from the time.

Nichole Hudson
SOCIOLOGY AND ANTHROPOLOGY DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Eric Gable

“Wigwams and WiFi: Conflicting Images at the National Museum of the American Indian”

Abstract

The architectural design of the National Museum of the American Indian was purposefully done to represent nature and the natural world. However, the use and reliance upon technology to interpret exhibits stands in direct contradiction to the exterior image of this museum. I will argue that this contradiction has caused confusion as to what the true purpose of the NMAI is and that it is prohibiting it from becoming a true post-museum.

Elizabeth Huff
ART AND ART HISTORY DEPARTMENT (Presentation)
Faculty Mentors: *Dr. Marjorie Och*

“Vittore Carpaccio’s Narrative Cycle of St. Ursula and Its Venetian Influences”

Abstract

The Venetian Renaissance painter, Vittore Carpaccio, painted the narrative cycle of St. Ursula for the Scuola di Sant’Orsola between 1490 and 1495. The nine paintings that make up the narrative cycle depict the story of St. Ursula, a Breton princess who agreed to marry a pagan English prince on the conditions that he convert to Christianity and go with her and eleven thousand virgins on a pilgrimage to Rome. On the eve of her journey she had a dream that the group would be killed, but she still went through with the journey. The entire group was ultimately massacred on the return journey by the Huns at Cologne. With subtle ambiguity, Carpaccio mingles reality and fantasy to create an extraordinary Venice of the fifteenth century as the backdrop to the nine intricately painted canvases that make up the narrative.

Erika Kamptner, Alexandra Mueller, and Michael Ford Michael
EARTH AND ENVIRONMENTAL SCIENCES DEPARTMENT (Poster)
Faculty Mentors: *Dr. Charles Whipkey, Dr. Abbie Tomba, Dr. Leanna Giancarlo, and Dr. Grant Woodwell*

“Stream water Quality, Sediment Chemistry, and the Macroinvertebrate Population in Stream Draining Abandoned Pyrite and Gold Mines in Louisa County, Virginia”

Abstract

Contrary Creek, located in Louisa County, Virginia, is the recipient of waters draining abandoned gossan, pyrite, and gold mines. Our assessment examines the impact of the former mines on stream water quality, stream sediment chemistry, and benthic macroinvertebrates. ICP-AES analyses indicate elevated concentrations of dissolved zinc, aluminum, and iron in stream waters, confirming and updating findings of previous studies. Redox potentials measured in Contrary Creek waters ranged from 159 mV to 500 mV, while stream water pH ranges from < 2.0 to 6.11. Suber samplers were used to quantify the macroinvertebrate assemblage of 4 pool/riffle habitats along a 400 m reach of the stream. Dissolved oxygen, pH, redox potential, and specific conductance were measured at each habitat unit. The invertebrate assemblage was dominated by chironomid midge larvae, with hydroptychid caddisflies being the second most common taxa. We are currently investigating the relationship between chemical variables to invertebrate diversity and abundance.

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Layton Kuchinski
THEATRE AND DANCE DEPARTMENT (Display)
Faculty Mentor: Mr. Kevin McCluskey

“Dressing Constance: A Costume Technology Project from She Stoops To Conquer”

Abstract

Dressing Constance involved the entire process of making a theatrical costume from developing the pattern to the building the final dress. The 4 week process develops the skills of a costume technologist, including: flat patterning and draping; interpretation of the costume drawing; researching period clothing as well as historic construction techniques; consultation with the costume designer; fitting the performer; and stitching techniques.

Rebecca Kraushaar
ART AND ART HISTORY DEPARTMENT (Presentation)
Faculty Mentors: Dr. Marjorie Och

“A ‘Wildly Eccentric’ Undertaking: Charlotte Salomon’s *Life? or Theatre?*”

Abstract

Charlotte Salomon’s Life? Or Theatre?, begun in 1940 under the threat of the Holocaust, is a magnum opus of cultural and artistic knowledge made up of over 1,000 paintings, autobiographical plays and songs that defies the limitations of its era. This Individual Study contextualizes *Life? Or Theatre?* within the modern and avant-garde art of Charlotte’s generation and analyzes how the “singspiel” form fits her artistic outpouring. It challenges the role of Alfred Wolfsohn, Charlotte’s lover and mentor, as traditionally interpreted by feminist scholars. Research was collected with the assistance of an Undergraduate Research Grant at the Jewish Historical Museum in Amsterdam. This Individual Study commemorates the remarkable achievement of a Jewish female artist, marked by her society as substandard, who produced a work that showcases the hallmarks of her German heritage and modernism while asserting her merit as a woman, a Jew and an artist.

Kelly Landau
EARTH AND ENVIRONMENTAL SCIENCES DEPARTMENT (Poster)
Faculty Mentor: Dr. Ben Odhiambo Kisila

“Application of Cs- 137 in Soil Erosion Analysis”

Abstract

Over the past few decades, scientists have increasingly come to realize the significance of soil erosion as one of the major problems with today’s environment, both in the US and worldwide. Soil erosion in most landscapes is a result of deforestation and agricultural and urban development. The resulting effects of erosion are plentiful and widespread and include widespread soil fertility decline and increased water turbidity. The watershed of central Virginia’s Rappahannock River has gradually shifted from a largely forested area to one of increasing agricultural and metropolitan development. Farms, towns, and cities,

along with the high concentration of roadways which provide for them, have replaced much of the watershed's natural land cover with bare, vulnerable and often impervious surfaces, essentially "paving the way" for erosion. Recent studies have shown that the Rappahannock River delivers more sediment per square foot of watershed than any of the other tributaries of the Chesapeake Bay. The purpose of this study is to assess the loss of soil to erosion through the analysis of cesium-137 distribution within the soil at various locations within the Rappahannock Watershed. The watershed was divided into two sections according to slope, the upper region extending from the headwaters to the bottleneck of the river, and the lower region from the bottleneck to where the river meets the Chesapeake Bay. Soil cores were collected from forested, grassland, cropland, and pasture sites in both regions, and analyzed for Cs-137 content. In addition to this, analysis of particle size distribution, soil pH, effective cation-exchange capacity, organic carbon content, and trace metal concentrations was performed for each site in order to gain a more comprehensive understanding of the state of Rappahannock watershed's soils.

Davette Leonard
ART AND ART HISTORY DEPARTMENT (Oral Presentation)
Faculty Mentor: Mr. Joseph Di Bella

"Painting the Ephemeral with the Enduring"

Abstract

The still life paintings are representations of cut fruits, painted directly from life, using methods, materials and aesthetic sensibilities in keeping with those of the High Renaissance. The traditional materials explored in this individual study project, entitled "Painting the Ephemeral with the Enduring," are egg tempera created with hand-ground natural pigments beneath oil glazes on rabbit skin glue gessoed birch wood panels. Images of the paintings, materials and processes will be shown in a power point presentation.

Christopher Lowery and Scott Smith
EARTH AND ENVIRONMENTAL SCIENCES DEPARTMENT (Poster)
Faculty Mentor: Dr. Neil Tibert

"The Viability of Ostracoda as Proxies for Pleistocene-Holocene Climate Change at Mono Lake, California"

Abstract

Mono Lake is a hydrologically closed lake located at the foot of the Sierra Nevada in Eastern California. Associated Pleistocene lake terrace deposits contain rich ostracode fauna with visible secondary calcite overgrowths on the Pleistocene material. The prominent ostracode genera are *Limnocythere* and *Candona*. Samples were analyzed for standard micropaleontologic census counts and elemental compositions using an Oxford EDS system housed on a Hitachi variable pressure scanning electron microscope. The two stratigraphic sections that were sampled include the lower part of the type section at Wilson Creek (0.0-6.5 m) and Mill Creek (~8.0-~10.2 m), both located on the northwestern shore of modern Mono Lake. Ash beds from the Wilson Creek section yield age ranges between 66.2 ($\hat{A}\pm 1.2$) to 23.0 ($\hat{A}\pm 0.9$) ka, indicating that the section falls entirely within the Pleistocene.

Ash beds at the bottom of the Mill Creek section date to c.16.0 ka, and this section potentially includes the Pleistocene-Holocene transition. Visual clarity indices were recorded for the ostracode carapaces such that on a scale of 1 to 5, one represents translucent, pristine skeletal calcite. Clarity indices for the ostracoda span this entire range, with an average 2.9. Qualitative elemental analyses revealed a suite of elements not usually found in pristine ostracode carapaces that include copper, iron, potassium, and aluminum. Ostracodes with relatively deteriorated visual clarities and relatively high frequency of major elements characterize the older Pleistocene deposits at Wilson Creek. The presences of secondary calcite and/or clay minerals on the surface of the ostracoda require that great care be taken to select pristine material for geochemical analyses. Samples from the younger Pleistocene-Holocene deposits at Mill Creek revealed pristine calcite with respect to both visual clarity and elemental compositions. Samples from both localities and ages will be analyzed for both oxygen and carbon isotopes and quantitative trace element geochemistry to test the viability of the ostracodes as primary environmental indicators.

Damon Lowery
BIOLOGY DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Alan B. Griffith

"The study of ecological and vegetation responses resulting from two dam removals in a tidal wetland system"

Abstract

As dam removals have increased in frequency, there is a growing need to determine the ecological effects of dam removal. This research reports pre-dam removal plant distribution and abundances along Holts Creek, a tributary to the Pamunkey River in New Kent County, VA. To assess vegetation distribution and abundance, ten transects were constructed along the entire drainage between the two dams. Among all transects there were 18 tree, 23 sapling, 5 vine, and 71 herbaceous species present. Out of the 71 herbaceous species, the most abundant was *Murdannia keisak*, which is an invasive species. *M. keisak* was present at 6 of the 8 transects, with an average percent cover of 20%. High relative abundance of invasive species poses a potential problem when dam removal occurs, because invasives can effectively disperse and quickly colonize newly barren sediments. As dam removal proceeds, it will be essential to monitor the establishment of these species.

Caitlin Lucia
THEATRE AND DANCE DEPARTMENT (Display)
Faculty Mentor: Mr. Gregg Stull

"Far Away Stage Management"

Abstract

This presentation contains photo documentation of the production process along with my paperwork and scripts for my senior project as a stage manager. Each element shows a different step from pre-production to the fulfillment of a show here at the University of Mary Washington.

Katherine B. Mulrey
PHYSICS DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. George King III

“Physics of Model Airplanes”

Abstract

The motivation for this project comes from my interest in the aerodynamics of flight. Given the limited opportunities for undergraduates to study in this field, I decided to collaborate with another colleague to utilize the physics of hydrodynamics introduced in my elementary and advanced mechanics courses to learn about airplane flight. Bernoulli's Principle provides a basic understanding of the forces associated with lift of airplanes, but viscous effects are important as well. In the first part of this project, a small table top model of a wind tunnel was utilized to study the effects of various airfoils exposed to wind speeds on the order of 1 m/s. The second part of this project involved building a large scale (at least 50 times larger) wind tunnel based on the results from the table top model. In this presentation, the details of the large wind tunnel and the results of viscous and inertial effects on model airplanes will be discussed.

Robert Lynn
ART AND ART HISTORY DEPARTMENT (Oral Presentation)
Faculty Mentor: Mr. Joseph Di Bella

“Realism Meets Abstraction in Contemporary Painting/Drawing”

Abstract

In my individual study I am examining the confluence of realism and abstraction in painting. I approach this combination in a number of ways, including playing illusionary depth against a flat picture plane, reducing three dimensional forms to cartoon representations, and emphasizing the physical properties of media used to evoke realistic images.

Michael Man
SOCIOLOGY AND ANTHROPOLOGY DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Jason James

“The Liberty Way: The Performance of Belief in a Southern Baptist University”

Abstract

Established by the late Jerry Falwell, Liberty University in Lynchburg, Virginia has grown from a school with no permanent campus to a renowned evangelical institution. It was founded on the principles that it would be a religious institution that stressed political conservatism and moral order. This is achieved by the Liberty Way, the student handbook that details acceptable behavior. The goal of the Liberty Way is to govern the performance of what is essentially Southern Baptism. However, issues arise as institutional views differ

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from student interpretation. In analyzing this relationship, one can gain a greater understanding into the workings of Southern Baptism.

Joseph McMahon
BUSINESS ADMINISTRATION DEPARTMENT (Poster)
Faculty Mentor: Dr. Larry Penwell

"The Facebook Effect"

Abstract

More students than ever are standing on the global stage of social networking services, such as Facebook and Myspace. A survey-based examination of how students are using social networking at Mary Washington leads to some interesting conclusions, and raises some critical questions about what the meaning of online relationships. Topics of interest include an examination of a cognitive theory of social development; can students have "too many" networks? Too many friends in one network? Are students spending too much time using networking services, and are friendships lost in network translation? My independent research, using an Internet-based UMW student survey, and led by Dr. Larry Penwell, begins this critical conversation.

Eric Norman
ART AND ART HISTORY DEPARTMENT (Oral Presentation)
Faculty Mentor: Mr. Joseph Di Bella

"Post Modernist Painting"

Abstract

The work in these paintings aims to avoid polycentric influence. Using movie stills and procured photographs as their subjects, the paintings acknowledge photography's apparent verisimilitude. The works blur and distort images so that a distance is created between the viewer and the work.

Nicholas Odhiambo and Roger Lamb
COMPUTER SCIENCE DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Stephen Davies

"Parole Office Web-based GIS Tracking Application"

Abstract

We have designed a service application for the Spotsylvania County Parole Office. This Web-based GIS application allows Parole Officers to automatically track the parolees assigned to them, based on their current addresses, upcoming appointment times, and other information. A map display indicates the geographic position of parolees' home addresses, and allows the user to hover over an address and automatically get information

about that parolee (including name, picture, criminal record, scheduled meetings, etc.) This information is amalgamated from desktop spreadsheets that Parole Officers already use to track their parolees, thus enhancing their data management while bringing minimal impact to their existing workflow.

Katherine O. Oldham
EARTH AND ENVIRONMENTAL SCIENCES DEPARTMENT (Poster)
Faculty Mentor: Dr. Michael Bass

“Monitoring the Storm water management Ponds of the Central Park Development and an Off-Site Wetland Mitigation Project”

Abstract

The Silver Company built the commercial Central Park, in an area with six acres of wetland and had to reconstruct these wetlands in two other areas: benches around the storm water management ponds that are in Central Park and an off-site in Spotsylvania County. The construct wetland was created adjacent to a natural wetland. In 2002, construction of a housing development began up slope from the off-site mitigated wetland. Monitoring involved water analysis for dissolved oxygen, temperature, conductivity, pH, nitrates, phosphates, alkalinity, total hardness, zinc, copper, and manganese in both locations. Within the off-site wetland, a survey of woody stems was done to assess the progress of this site towards a forested wetland. A comprehensive list of woody and herbaceous species was generated showing a slight increase from 2006, indicating succession towards a healthy wetland ecosystem. Soil coring in the constructed wetland was performed to look for reduced, hydric soil. The water analyses results showed no unusual levels of the compounds tested were found in either the SMPs or the constructed wetlands and were all within required limits. A density of 585 woody stems per acre was calculated and is well above VDEQ's requirement of 400 woody stems per acre for a forested wetland. The soil coring showed hydric soil throughout the constructed wetland and in an adjacent seep wet area originally listed as upland. This wetland mitigation project has exhibited success and will be monitored in the future.

Nicholas Erin O'Donovan
PSYCHOLOGY DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Holly Schiffrin

“Mood Over Matter: Can Happiness Be Your Undoing?”

Abstract

This study investigates the effects of mood on an individual's cognitive processing, as measured by reaction time. More specifically, this study assesses how negative mood can hinder one's performance, while positive mood can facilitate performance and undo the effects of negative emotion. Results will determine if mood impacts reaction time.

Maggie O'Toole
MODERN FOREIGN LANGUAGE DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Elizabeth Lewis

"The Promised Land: A Short Story"

Abstract

Part of a collection of short stories exploring identity, "The Promised Land" follows Moises, stranded in the Mexican desert, and Rick, lost with him by accident. Where they, and later their families, find common ground is not in the borders and laws of society but in the shared experiences of humanity.

Mary Pilger
PHYSICS DEPARTMENT (Poster)
Faculty Mentor: Dr. Bob Ekey

"Study of Nitrogen Afterglow Emissions Created in a Molecular Beam Discharge"

Abstract

Many molecular species of atmospheric and astronomical interest are transient in nature. Due to their natural lifetime, we must recreate these species in the laboratory. A nitrogen afterglow is emissions from excited molecular nitrogen which can be seen as the pinkish hue in the aurora borealis. A nitrogen afterglow is created in the laboratory by exciting gas phase nitrogen in a pulsed discharge source that operates in a molecular beam. As the excited nitrogen expands into the chamber, it spontaneously emits energy in the form of light, which is dispersed using a spectrometer. To create the strongest possible afterglow, the optimal conditions of the system were explored through diagnostic tests. These tests provide direction for the dispersed emission observations and insight into the varied dynamics in the system. This experiment hopes provide a better understanding of other situations involving the nitrogen afterglow, such as the northern lights.

Jenae Pinney and Rebecca Shapiro
EARTH AND ENVIRONMENTAL SCIENCES, AND CHEMISTRY DEPARTMENTS (Poster)
Faculty Mentors: Dr. Charles Sharpless and Dr. Ben Kisila

"The Effect of Land Use on the Nutrients and Organic Contaminants in the Water and Sediment of the Rappahannock River"

Abstract

The degradation of the Chesapeake Bay is a huge environmental concern. Excess nutrients, mainly nitrogen and phosphorous, pollute the water causing overproduction of algae which stresses the ecosystem. This research aims to determine whether the Rappahannock River is a significant source of pollutants in the Chesapeake Bay. Five sampling locations were chosen to represent different land use surrounding the river. Water samples were analyzed for nitrate and phosphate and sediment samples were analyzed for phosphate and organic

contaminants. Sampling began May 2007 and continues monthly. Overall, nitrate concentrations have been below 1.0 mg NO₃⁻ / L which is not harmful. Phosphate in water has also been low with readings varied between 2.00 and 31.00 µg P / L. Concentrations in dried sediment were between 20.00 and 40.00 mg P / kg. Preliminary GC-MS analysis of sediment show organic contamination, possibly steroid products, but further analysis is needed to confirm identification.

Jonathan T. Pollak
GEOGRAPHY DEPARTMENT (Poster)
Faculty Mentor: Dr. Brian Rizzo

“Toward a Digital Campus”

Abstract

Geographic Information Systems (GIS) are an innovative and powerful technology that is shaping the interpretation and analysis of our world. GIS enables the synthesis of data with location providing tools to facilitate spatial analysis, asset management and location based services. This research focuses on two specific applications of GIS in the context of the UMW campus. Both applications were developed by integrating existing Computer Aided Drafting (CAD) information with imagery within a GIS environment. The first application focuses on the development of a digital virtual model of the campus rendered in both 2-D and 3-D space, providing a graphical model of the campus that can be access via the internet. In addition to graphically illustrating campus features users can locate buildings and other assets using the mouse to interact with the display. The second application focuses on the development of an asset management application. Based on the graphical model, the asset management functionality demonstrates how facilities managers could use GIS to manage the campus assets.

T. Morgan Riley
HISTORIC PRESERVATION DEPARTMENT (Poster)
Faculty Mentor: Dr. Gary Stanton

“Is This the Right Room?': An Analysis of Shifts in the Function of Spaces at the Mary Washington Campus: 1911 - 1941”

Abstract

When the Fredericksburg State Normal and Industrial School opened in 1911 it consisted of two buildings, each with spaces assigned to specific purposes. As the buildings and grounds expanded, the functions of particular building and landscape spaces were repeatedly altered, though not always coinciding with major architectural changes. Prior to this work, there was no comprehensive study of the history of individual spaces within the University of Mary Washington's buildings, nor on the earliest landscape and infrastructural changes. Photographic, architectural, and written sources were used as the basis for establishing the function and changes of specific spaces in the pre-WWII period, with particular focus on the Administration Building (Monroe Hall) ca.1911. The results of

this study, presented in both written and visual form, will likely serve as a basis for further research and study of the architectural and social history of the institution.

Justine Simone
HISTORY AND AMERICAN STUDIES DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Claudine Ferrell

"American War Crimes Advocacy from Leipzig to Nuremberg: The Social, Legal, and Political Origins of International Criminal Legalism, 1919-1939"

Abstract

An effective understanding of the origins of the Nuremberg Trials must begin in 1919--with the end of World War I and when, essentially, planning began for the Leipzig war-crimes trials of 1921--rather than 1939 and the beginning of World War II. Social, legal, and political developments affecting legal thought in the interwar period were intrinsic to the establishment and implementation of international criminal law at Nuremberg. While the United States opposed the Leipzig Trials, those developments led it to be a principal advocate of the post-World War II tribunals

Krishna Sinha
BUSINESS ADMINISTRATION DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Galen deGraff

"Using Time Series Decomposition to Forecast Attendance of Historic Kenmore"

Abstract

For more than a decade, Historic Kenmore in Fredericksburg Virginia has been experiencing increasingly low levels of attendance. This study seeks to forecast the future attendance of this location by utilizing time series decomposition and investigate the effect of the seasonal, cyclical, trend and irregular aspects on the prediction. This type of study could be useful to managers of the estate, as they may be able to exploit individual aspects of the time series to boost attendance, and subsequently raise more funds. The forecast may also be used to predict how long the estate can operate below capacity (and therefore under-funded) before experiencing financial difficulty. A within sample test provided a forecast to actual ratio of more than 93% for the time period of January 2001 to August 2006.

Stephanie Smith
ART AND ART HISTORY DEPARTMENT (Oral Presentation)
Faculty Mentor: Mr. Joseph Di Bella

“Peruvian Street Boys Wall Installation”

Abstract

The individual study was inspired by the mission trip to Peru this past summer, working with the "street-boys" in Lima, Kusi, and Ica. These boys are kicked out of their homes at ages 4 and 5 years to prostitute themselves, become thieves, or to be shot by the police, who call this "cleaning up the streets." I am doing a wall installation/visual diary of this experience through multiple media.

Sherin V. Stephen
PHYSICS DEPARTMENT (Poster)
Faculty Mentor: Dr. George King, III

“Physics of Model Airplanes”

Abstract

The motivation for this project comes from my interest in the aerodynamics of flight. Given the limited opportunities for undergraduates to study in this field, I decided to collaborate with another colleague to utilize the physics of hydrodynamics introduced in my elementary and advanced mechanics courses to learn about airplane flight. Bernoulli's Principle provides a basic understanding of the forces associated with lift of airplanes, but viscous effects are important as well. In the first part of this project, a small table top model of a wind tunnel was utilized to study the effects of various airfoils exposed to wind speeds on the order of 1 m/s. The second part of this project involved building a large scale (at least 50 times larger) wind tunnel based on the results from the table top model. In this presentation, the details of the large wind tunnel and the results of viscous and inertial effects on model airplanes will be discussed.

Claire Tamaccio
GEOGRAPHY DEPARTMENT (Poster)
Faculty Mentor: Dr. Jacqueline Gallagher

“Mapping with Mobile GIS: Alum Spring Park, Fredericksburg”

Abstract

A Mobile geographic information system (GIS) allows the collection of attribute data in the field, at the location of interest, at the same time that locational data are collected via global positioning system (GPS). Using ESRI's ArcPad, an aerial image improves accuracy over recreational GPS, and the GIS allows additional shapefiles or images to be shown as required. A Fall 2007 course in Mobile GIS and GPS required a survey of a local area. This poster demonstrates how Alum Spring Park in Fredericksburg was mapped. Individual

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shapefiles were created according to features in the field; these can be shown on final maps according to purpose. The final GIS was made to hyperlink photographs taken at the park, making a virtual tour and/or paper maps of the physical, cultural and recreational features of the park possible. Class projects with significantly different themes are also shown on this poster.

Ellie Tiemann
EDUCATION DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Thomas Fallace

“Investigating History Through Cultural Universals”

Abstract

This is an action research project that used cultural universals in the social studies curriculum of a kindergarten classroom. Students were introduced to the general idea of what cultural universals were, and then studied two different periods of history through cultural universals. The project looked at to what extent cultural universals helped students form more concrete distinctions between the past and present, and the differences between various periods in history.

Andrew Uyehara
SOCIOLOGY AND ANTHROPOLOGY DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Margaret Huber

“Where Do Franks Belong?: The Liminality of Food at Ballparks”

Abstract

For countless years the ballpark frank has been the symbol for food at ballgames. Long associated with notions of nostalgia, where does the hotdog stand in the modern era amidst the pressures of globalization and discerning pallets? Presently, food at stadiums remains in a state of limbo, where traditional notions of stadium food meet revitalization movements to bring greater choices and specialization to concessions. In this paper, I discuss the state of food at ballparks across America, and their symbolic and structuralist implications.

Rebecca Voglewede
BUSINESS ADMINISTRATION DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Galen deGraff

“How Does Wal-Mart Do It? An Examination of Recent Financial Performance”

Abstract

This project examined Wal-mart's growth and profitability using information from fiscal years 2002-2006. Growth was measured using sales revenue, while profitability was measured using return on equity. The firm's ability to maintain growth and profitability was

forecasted 1 year in advance (fiscal year 2007). The technical forecast was judgmentally adjusted using qualitative influences, and then compared to what actually occurred using a within-sample test. Forecasted results came within 2 to 3 percentage points of actual data, indicating accuracy of both the forecasting technique and Wal-mart's management.

Donna Weber
THEATRE AND DANCE DEPARTMENT (Display)
Faculty Mentor: Mr. Gregg Stull

"Stage Managing Of A Funny Thing Happened On The Way To The Forum"

Abstract

My project is based on my experience as the stage manager of "A Funny Thing Happened On The Way To The Forum" in the Fall of 2007. From pre-production to the final performance, my project will show the life of a stage manager through pictures and documents.

Jonathan Williams
CHEMISTRY DEPARTMENT (Poster)
Faculty Mentor: Dr. Charles Sharpless

"Photochemical Fate of Biodiesel Spills"

Abstract

In the past decade, the use of biodiesel has increased both industrially and commercially. Thus, it is important to study its environmental safety. One question is the possible fate of a biodiesel spill exposed to solar radiation. We are studying the effect of UVB radiation on biodiesel. Samples of 5% and 20% biodiesel were irradiated at 365 nm in sealed tubes for 0, 3, 12, and 24 h. Absorbance and fluorescence spectra were collected. Fluorescence decreases more rapidly than absorbance, suggesting destruction of polycyclic aromatic compounds. Water extracts of the samples were also collected. With increasing irradiation, the amount of UV absorbing material extracted into water increases, indicating that photolysis products of the fuel are more water soluble than the original mixture. Future work will investigate the exact nature of the chemical changes during photochemical weathering of biodiesel.

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Kelly Wuyscik, Andrea Meyer, Lisa Meissner, and Talya Halpern
HISTORY AND AMERICAN STUDIES DEPARTMENT (Oral Presentation)
Faculty Mentor: Dr. Jeffrey McClurken

“The James Monroe Papers”

Abstract

The James Monroe Papers project, based at the University of Mary Washington under the direction of Dr. Daniel Preston, requested an official website be built within the UMW website. It was the duty of the four of us, under the guidance of Dr. Jeffrey McClurken during a Digital History Seminar in the History Department, to create the website for the project. Also, we were instructed to create a second website based around James Monroe's time as Minister to France. The website is centered around microfilm dispatches, both to and from James Monroe while on his mission to France, that we have scanned and uploaded for the public to view.

Juliette Zerick
MATHEMATICS AND COMPUTER SCIENCE DEPARTMENTS (Oral Presentation)
Faculty Mentors: Dr. Jeffrey Edmunds and Dr. Ernest Ackermann

“Computational Characterizations of Basin Boundaries”

Abstract

A Java applet previously developed for the display of chaotic orbits of a nonlinear population model is extended to display basins of attraction of the multiple attractors. Estimations of boundaries are necessary to efficiently display pre-rendered basins. The basins cannot be rendered in real-time, because it can take thirty minutes to render one basin, and hours or days to compute a series using parallel processing techniques. Additionally, each rendering is a set of points which may form extremely large datasets; transmission time over a network is unrealistic. By “tracing” a basin, boundary data can be sent instead and quickly “colored in” by the applet. Methods will be developed to properly visualize the multi-dimensionality of the basins.
