

9:30 – 10:40

Economic Issues**Global Crises, Global Solutions: Part I (short talks) Pendleton East 239**

Economists from around the world formed the Copenhagen Consensus in 2004 to set priorities in addressing global challenges and compete for a hypothetical \$50 billion to fund policies to address these challenges. In ECON 312 we simulated the Copenhagen Consensus by forming groups to examine the challenges and the proposals to address them. The aim of each group was to persuade our fellow classmates that our global proposal would make the greatest impact on the world's population.

Subsidies and Trade Barriers

Nanki Marwah '07, Economics and Rebecca Nounou '07, Economics
 ADVISOR: Joseph P. Joyce, Economics

Each country has erected barriers to trade and implemented subsidies which have distorted trade patterns. These measures alter the allocation of the world's resources and adversely affect growth opportunities which could benefit the poor. The richer nations have pledged to address the needs of the developing nations at the Doha round of trade talks, but differences among rich and developing nations remain. Our presentation will show the effects of subsidies and trade barriers, and the benefits of eliminating or reducing them.

Financial Instability

Olga Vidisheva '07, Economics
 ADVISOR: Joseph P. Joyce, Economics

Financial instability has proven to be costlier for emerging markets than any other shocks, including wars, natural disasters, and changes in terms of trade. The benefits of capital flows are mitigated by recurrent financial crises, such as the Asian crisis of 1997. The crises have large implications on poverty, long-run growth rate, divorce and crime rates. I will talk about the impact of financial instability and solutions proposed for addressing this issue.

Civil Wars

Megan Shum '07, Economics and Spanish, Erin Hung '07, Economics, and Janet Ng '07, Economics
 ADVISOR: Joseph P. Joyce, Economics

Although the frequency and magnitude of violent conflicts have decreased significantly during the last decade, severe and costly civil wars continue to plague the world. This presentation will present an economic analysis of the severity and global impact of regional conflicts. We examine the impact of wars in the country under conflict, its immediate neighbors and other nations. We also address some solutions to address this challenge.

Literature and the Arts**Romantic Chamber Music: Brahms and Schumann (long performance) Jewett Auditorium**

Julia Blood '09, Japanese Language and Literature and Neuroscience, Stephanie Kim '09, Neuroscience, Rathika Nimalendran '08, Music, Katherine Roth '08, Music, and Cecilia Zhou '08, Economics
 ADVISOR: Jan Pfeiffer, Chamber Music Society Co-Director

Robert Schumann's (1810-1856) chamber music is a major force of the Romantic Era. His Piano Quintet in E-flat major, op. 44 (1842) is considered one of his supreme works and has remained popular since its premiere by his wife, Clara Wieck Schumann, in 1843. Theme transference throughout all four movements creates a vigorous and exciting work. Johannes Brahms (1833-1897) followed in Schumann's footsteps, yet brought Romantic music to a new level with his unique compositional style. The String Quartet, op. 51, no. 2 in A Minor (1873) demonstrates Brahmsian characteristics of slow triplets and mixed rhythms which create a complete compatibility of music and sound. Schumann and Brahms represent some of the greatest and most

original chamber music composers of the Romantic Era.

Science and Technology**Synthesis and Structure (short talks) Science Center 278****Evidence of Hydrogen Bonding in 1,2,4-Triazolium Salts**

Claire Reddy '09, Chemistry
 ADVISOR: David R. Haines, Chemistry

1,2,4-Triazolium salts have important applications as customizable ionic solvents. When the anion is varied, an unexpected dependence of the H5 resonance on the anion is observed in CDCl₃, greater downfield shifts corresponding with increased anion basicity. It is proposed that this chemical shift results from hydrogen bonding between the anion and H5 in solution. H-C correlated NMR spectra were generated for 1-allyl-4-phenyl-1,2,4-triazolium bromide in CDCl₃ at concentrations from 0.04M to 0.6M. As concentration increases, an upfield shift in H5 (12.6-12.2ppm) and a downfield shift in H3 (9.1-10ppm) is observed. A possible explanation for this shift is that as concentrations increase, hydrogen bonding to H3 becomes significant, attenuating the acidity of H5. X-ray crystallography of 1-allyl-4-phenyl-1,2,4-triazolium iodide and 1-benzyl-4-phenyl-1,2,4-triazolium chloride show the anion located near both H3 and H5 in hydrogen bonding positions. Further investigation includes more X-ray crystallography and computational models. (Research supported by Staley Fund for Cancer-related Research.)



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New Directions in the Synthesis of a Vancomycin Derivative Incorporating an Unnatural Carbohydrate Residue at the Vancosamine Position*Adelaide deGuillebon '08, Chemistry and Joyce Ngai '09, Chemistry*ADVISOR: *Nicole Snyder Lee, Chemistry*

Vancomycin is a glycopeptide antibiotic that is used to treat gram-positive bacterial infections, such as those caused by *Staphylococcus*. Vancomycin functions by blocking the approach of several key enzymes involved in bacteria cell wall biosynthesis. Inappropriate administration of vancomycin over the past twenty years has led to the development of a number of vancomycin-resistant strains of bacteria. In response, researchers have set out to prepare more potent derivatives of vancomycin capable of treating vancomycin-resistant bacterial infections. Here, we present progress towards the synthesis of an entirely new analog of vancomycin that incorporates an unnatural carbohydrate residue at a key position. The proposed derivative will be used to further an understanding of the role of the carbohydrate component in the inhibition of bacterial cell wall biosynthesis, and will serve as a foundation for the design and preparation of other glycopeptide antibiotic derivatives that can be used to reverse bacterial resistance.

Preparation of Tryptophan Hydroxylase-activated Gadolinium-based NMR Contrast Agent*Susan M. Smith '08, Biochemistry*ADVISOR: *David R. Haines, Chemistry*

Biologically site selective NMR contrast agents allow for magnetic resonance imaging (MRI) studies of biological activity. We have prepared a gadolinium containing contrast agent, using the 1,4,7,10-tetraazacyclododecane N,N',N'',N'''-tetracetate ligand. To direct this contrast agent to the site of tryptophan hydroxylase activity, we attached tryptophan at one of the acids through an amide linkage. Molecular modeling of this new ligand with a complexed gadolinium

ion indicates that the pi electrons of the aromatic ring of the tryptophan interact with the gadolinium ion, resulting in exclusion of water from contact with the complexed metal ion. Upon interaction of the gadolinium complex with tryptophan hydroxylase, it is predicted that the tryptophan ring will fold out from the gadolinium ion, allowing interaction of the water molecules with the gadolinium, and resulting in increased contrast in T1-weighted MR images. The synthesis and characterization of the complex, as well as preliminary contrast studies, will be discussed.

Gases on Earth and in the Stars (short talks) Science Center 396**Low-energy Electron-induced Chemistry of Condensed Halomethanes***Maria C. Mattera '09, Physics and Political Science and Mehreen Iqbal '09*ADVISOR: *Chris R. Arumainayagam, Chemistry*

We have investigated the low-energy electron-induced chemistry of several condensed halomethanes (CF₃I, CF₂Cl₂, and CCl₄) as a function of incident electron energy and fluence. Our experimental procedure involves temperature programmed desorption experiments following low-energy (1 – 100 eV) electron irradiation of nanoscale thin films (< 10 Å thickness) of halomethane films grown at 100 K on a molybdenum single crystal in an ultrahigh vacuum chamber ($p \sim 1 \times 10^{-10}$ Torr). These studies serve to elucidate the pivotal role that low-energy electron-induced reactions play in high-energy radiation-induced chemical reactions in condensed matter. The studies may also provide information valuable to (a) furthering cost-efficient destruction of hazardous chemicals, (b) understanding the electron-induced decomposition of feed gases used in the plasma processing of semiconductor devices, (c) clarifying the role, if any, of low-energy electrons, produced by cosmic rays, interacting with CF₂Cl₂ and producing Cl atoms that contribute to the formation of the ozone hole, and (d) illuminating the dynamics of elec-

tron-induced oligomerization and/or polymerization (Research supported by BellSouth Mentoring in the Sciences Gift and the Office of the Dean of the College.)

Determining the Time Evolution of Bose-Einstein Condensate*Merideth Frey '07, Physics*ADVISOR: *Courtney Lannert, Physics*

Bose-Einstein condensates (BEC) – produced when atomic gases are cooled to near absolute zero – offer a macroscopic way to view the quantum mechanical world. In order to measure certain properties of these condensates, the cooled gas must be released from its potential trap and allowed to expand. Oftentimes an analytic solution for the time-evolution of the BEC wave-function after release from the trap cannot be found and a numerical solution is needed. By applying a recent numerical method for solving the Gross-Pitaevskii equation, the time-evolution for BEC after release from potential traps of various geometries can be found. These numerical solutions can show interference effects when two condensates overlap, allowing a unique macroscopic observation of the quantum behavior of Bose-Einstein condensates. (Research supported by Jerome A. Schiff Fund, National Science Foundation, and Howard Hughes Fund.)

Symbiotic Stars: Observations with Whitin Observatory's 24-inch Telescope*Rebekah Dawson '09, Astrophysics*ADVISOR: *Wendy Hagen Bauer, Astronomy*

A symbiotic star system consists of a small, hot star accreting material from a large, cooler companion star. For more than a decade, Wellesley professors and students have observed these stars using Wellesley's 24-inch Sawyer telescope and analyzed their brightness fluctuations. To prepare the results of these observations for publication, I wrote a computer program to check observation dates among several databases and modified the analysis programs to be compatible with the way the CCD camera data is currently

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being read out. When we discovered that a limitation with the old configuration of the CCD camera might have caused errors in the results, I carried out a new observing program to assess the impact. Wellesley's observations will contribute to a growing body of knowledge about these fascinating star systems. (Research supported by the Office of the Dean of the College.)

**From the Body to the Bay:
Applications of Nanoscale Surface
Modification (panel)
Science Center 104**

Shloka Ananthanarayanan '08, Biochemistry, Alex Bear '09, Chemistry, Mimosa Burr '07, Chemistry, Danielle Draper '07, Spanish, and Julia Lin '07, Chemistry

ADVISOR: *Nolan Flynn, Chemistry*

Nanoscale surface modification has potential for use in biomedical and marine applications including the mitigation of fouling, or adhesion of cells or organisms to a surface. In biomedical applications, cell or protein adhesion to an implantable device can impair proper device function. In marine environments, fouling of ships adds drag to the ship, thus increasing fuel consumption and green house gas emissions. To prevent fouling, surfaces can be coated with self-assembling thin films. We are examining the fundamental properties of thin films made from functionalized gold nanoparticles and polymers. The moderate- to long-term stability of gold nanoparticle-based thin films and the thermoresponsive behavior of *N*-isopropylacrylamide-based polymers are being investigated. Gold nanoparticles are biocompatible and can also be used for the delivery of treatment to cells. Surface modification of gold nanoparticles with antibodies and a boron agent is being examined to develop a safe cancer treatment. (Research supported by the Pamela Daniels '59 Fellowship, the BellSouth Mentoring in the Sciences Gift, and the National Science Foundation.)

**Communicating with Technology:
Games and Cooperation (panel)
Pendleton East 139**

Cooperative and Democratic System Administration

Rebecca Shapiro '07, Computer Science
ADVISOR: *Mark Sheldon, Computer Science*

As a user of a server, one is forced to trust the system administrators who maintain the system. Each system administrator who has access to the super-user account has unbridled access to all of the computer's resources. When an administrator obtains super-user access, the system is at her mercy. My work implements a security policy that divides the super-user's authority into a set of flexible roles. This prevents a single system administrator from having full control over the system. My system also provides an election mechanism that governs the administrative roles so no one administrator can govern roles. If any administrator needs to change a role, the election mechanism needs to be used, allowing all of the administrators to vote on the proposed change and committing it if the vote passes. By inserting this level of indirection to govern roles, no one malicious administrator can obtain the equivalent of super-user access.

Reputation in Evolutionary Prisoner's Dilemma

Hitomi Yoneya '07, Computer Science and Economics
ADVISOR: *Scott D. Anderson, Computer Science*

My thesis will determine whether reputation (defined by mutual ratings) can facilitate cooperation in a community where individuals have an incentive to cheat others. The situation in which players have an incentive to cheat, but collectively they would be better off if they cooperated, is called the Prisoner's Dilemma (PD). For example, in electronic commerce, the buyer has an incentive to cheat (not pay) and so does the seller (not send the product). I am studying whether cooperation can be achieved through

reputation, like the customer review systems in e-commerce companies such as Amazon.com. I developed a simulation program that allows an observer to create, modify, and run simulations of PD. I have extended this simulator with a reputation system and a hill-climbing procedure for finding the evolutionary stable state. The simulations will determine whether cooperation can be achieved through realistic reputation systems.

Narrative and Interactivity in Video Games

Sarah Abraham '07, Media Arts and Sciences and Russian

ADVISOR: *Scott D. Anderson, Computer Science*

Unlike previous forms of artistic media, video games provide entertainment that interacts with the user. Academic study of video games is still limited because of their recent development, but meaningful analysis of the medium requires techniques suitable for understanding the relationship between narrative and interactivity. Since narrative implies inevitability while interactivity gives choices to the player, the two elements appear contradictory, yet the two aspects can have a synergistic relationship within game environment, game atmosphere, and characterization of the player's avatar. Depictions of the game space during cinematics provide hints and goals for actual gameplay, while the in-game space directs the events of the narrative. The mood created with cinematics carries over to the atmosphere of the gameplay, just as gameplay atmosphere affects the mood of cinematic events. In the same way, the characters' in-game appearance and abilities create a sense of personality, which cinematics further develop.

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Social Analysis**Gender and the Workplace (panel)
Pendleton West 117****Women and the Medical Profession***Elizabeth C.M. Diflo '08, Neuroscience and Women's Studies*ADVISOR: *Nancy L. Marshall, Women's Studies/Wellesley Centers for Women*

Women have always been healers. They have cared for children and sick neighbors. They have experimented with herbs and innovative methods of healing. They were midwives and birth coaches, abortionists and counselors. They were the beginning of medicine and the power underneath it that maintains itself today. Women were not admitted to any medical schools until the late 1800s, and it was not until the 1970s that their enrollment went above 5%. During this time, women were kept out of medicine based on assertions of inferior control of their emotions, intellect, and general disagreement of a woman's true place. Since they were first rebuked for their sex, women have fought hard to become an integral and dynamic part of the medical profession. This presentation discusses the current experiences of women in medicine, through the eyes of one woman's experience as a female surgeon.

The Reality of Sweatshops in Modern Society*Mayra Navarro '07, Mathematics*ADVISOR: *Nancy L. Marshall, Women's Studies/Wellesley Centers for Women*

The term sweatshop was coined in Britain in the nineteenth century in reference to "the sweated trades." Although many assume that sweatshops are a thing of the past, sweatshops continue to exist in the United States. Most of all, sweatshops continue to exploit immigrants since they lack political authority and human capital. In my research, I interviewed two siblings who emigrated from Mexico. Both have worked in sweatshops since their arrival in

the United States. My goal was to discover what brought them into this field, what has caused them to remain in the field, what their experiences have been in sweatshops and if there was a difference in treatment between the genders. Results indicate that gender does not play an important role in the exploitation process within sweatshops. I argue that this is due to the desire of the employer to pay the lowest possible wage to any individual regardless of sex.

Women in Information Technology (IT)*Jacqueline Weber '07, Cognitive Science*ADVISOR: *Nancy L. Marshall, Women's Studies/Wellesley Centers for Women*

In the U.S., only about 35% of IT workers are female. This number has actually declined from 41% to 34.9% from 1995 and 2002. Similarly, the percentage of women in full-time, first-year undergraduate enrollment in engineering has dropped from 19.9% in 1996 to 16.3% in 2005. These statistics are evidence that there are few women in IT careers, and the numbers are dropping. What is going on here? How is it that in today's modern world, where women are fast catching up with (or surpassing) men in almost every field, we find a growing gender gap in IT? In this presentation, I draw together research and information from a wide variety of sources in an effort to explain this phenomenon. I then examine one case history, my own, in light of this research on women in computing.

**Natural and Unnatural Resources
(short talks) Pendleton West 116****"So Much to Extract, So Little Time":
Natural Resource Use in Latin America***Catherine A. Silvey '07, Political Science and Spanish*ADVISOR: *Elizabeth R. DeSombre, Political Science*

Latin America is rich in natural resources; it has expansive tropical forests, large reserves of nonrenewable resources such as gas and oil, and a diverse range of wild flora and fauna. However, rapid deforesta-

tion and the exhaustion of petroleum resources pose possible threats for the individual states within Latin America, as well as for the maintenance of security within the region. Factors such as poverty, distribution of land and assets, population growth, income distribution, and a lack of government regulation can shape the way natural resources are treated in individual countries and communities within Latin America. I analyze how these factors are linked to the recent trends in deforestation and oil extraction, and what these findings say about general natural resource use in the region.

**Cold-war Menace or Climate Salvation?
Nuclear Energy and Public Opinion***Mary E. Mills-Curran '07, Physics*ADVISOR: *Elizabeth R. DeSombre, Political Science*

As oilfields are depleted and energy security becomes more tenuous, determining the cause of public reactions to all alternative forms of energy becomes more and more important. In addition, climate change caused by carbon dioxide emissions from burning fossil fuels may be an even larger problem than decreasing supplies. Some argue that nuclear energy is the only technology which can possibly reduce the world's use of fossil fuels quickly and to a low enough level to have any impact on global warming. If this is the case, any effort to increase the amount of energy produced by nuclear technology will need to have an accurate understanding of what members of the public are concerned about and what influences their opinion. I examine polling data on national support of nuclear energy to characterize a county's acceptance of the technology and its relationship to factors like education and concern about climate change.



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Not a Drop to Drink: Willingness to Pay for Clean Drinking Water in a Typical Neighborhood in Calcutta, India*Shaheli Guha '07, Computer Science and Economics*ADVISOR: *Stacy Sneeringer, Economics*

The World Health Organization states that people have a right to access clean drinking water. Dirty water is a major source of communicable diseases in the developing world. Yet the United Nations estimates that there are over one billion people in the world who live without access to safe drinking water near their homes. Asia and Africa have the worst quality of drinking water. Studies have shown that the water supply in the city of Calcutta in India is often unfit for human consumption. This study aims at finding the willingness to pay for clean drinking water in a typical neighborhood in Calcutta. Knowledge of the citizens' willingness to pay for potable water will help the city water board to better distribute water resources based on the demand for water.

**Ethics in Action (short talks)
Pendleton West 212****Closing the God Gap: The Democratic Party and the Use of Values Rhetoric in 2006***Megan Mitchell '07, Political Science*ADVISOR: *Marion Just, Political Science*

The 2004 election perpetuated the idea that the Republican Party is the party of religion, faith, and morality. In 2006, the Democratic Party made a concerted effort to challenge this assumption. I will examine four case studies: the Senate races in Missouri, Ohio, Pennsylvania, and Tennessee. Candidates from both parties in each of these states mobilized their bases through reaching out to progressive faith groups, spoke with religious leaders who represented a variety of ideologies, broadcast their message on religious radio, framed their issue stances with values, and discussed their personal faith with voters in their speeches and advertisements. I will examine the variety in

outreach techniques used, how factors such as authenticity and political climate influenced the candidates' use of these techniques, and their varying effects on the outcomes of the races

World Population Growth vs. Reproductive Rights: The Ethics of Automatic Birth Control*Lindsey Silver '07, Philosophy and Political Science*ADVISOR: *Maud Chaplin, Philosophy*

In "Sex and Consequences: World Population Growth vs. Reproductive Rights," Margaret Battin proposes that we address the global overpopulation crisis by making all people use "automatic" birth control. Devices such as IUDs and subdermal implants provide constant contraception, so individuals who use those types of birth control must actively choose to have children by removing the device. Battin argues that if the implants were universal and reversible, they would curb population growth, decrease abortions, and avoid the moral problem of doctors deciding who can have children. I asked a variety of people, including Wellesley students and faculty members, to read the article, after which I interviewed them about the article and about why Battin's idea was morally problematic for them. I will discuss the issues that emerged from those interviews and how I responded to them in order to defend Battin's idea.

The Status of the Fetus and the Permissibility of Abortion in the Jewish Ethical Writings of Rashi and Maimonides*Carmel Shachar '07, Religion and Bioethics*ADVISOR: *Barbara Geller, Religion*

Abortion is one of the most ethically controversial medical procedures available. From antiquity to the present, Jewish rabbis and scholars such as the medievalists Rashi and Maimonides have wrestled with such issues as the status of the fetus and the permissibility of abortion. Based on his interpretation of Talmudic passages, Rashi adopted a model of the

fetus as not *nefesh*, which became a basis for permitting abortions in a broad range of situations. In contrast to Rashi, Maimonides' model of the fetus as *rodeph* provides much stricter criteria for permitting abortions. These two models have formed the basis for much of the abortion discussion in Jewish sources rooted in the Jewish textual tradition. Interestingly, the writings of Maimonides and Rashi on abortion bear similarities to the theories of modern bioethicists such as Don Marquis, Bonnie Steinbock, and Mary Anne Warren.

Language as a Smokescreen: A Comparative Exploration of the Discourse on Violence and Victimhood in Israeli and Palestinian Newspapers*Elizabeth L. Biermann '07, Middle Eastern Studies*ADVISOR: *Rachid Aadnani, Middle Eastern Studies*

Israeli and Palestinian national narratives of victimhood and the "other" frame individual acts of violence as part of an epic struggle fought by morally asymmetric forces. By studying the evolution of the media discourse on violence and victimhood in two Israeli and two Palestinian newspapers, I hope to illuminate how representations of the "other" and the religious and nationalist connotations of the terminology employed influence how the Israeli-Palestinian conflict is perceived at home. In my comparative analysis I am focusing on the time period since the kidnapping of IDF soldier Gilad Shalit on June 25, 2006, which sparked the most recent wave of Israeli-Palestinian violence in the Gaza Strip. Viewing the conflict through Palestinian and Israeli news reports, I seek to understand the implications of this discourse for future Israeli-Palestinian negotiations, given the linguistic acknowledgements of the legitimacy of the "other" that have been demanded before the start of negotiations.

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About Wellesley**The Wellesley-Olin Connection:
How to Make the Most of It (panel)
Pendleton West 212**

Natalia Creamer '07, Anthropology, Susan Tse '07, Physics, Katy Moyer '07, Physics, and Alessondra Springmann, '07, Astrophysics

ADVISOR: *Ted Ducas, Physics*

The Franklin W. Olin College of Engineering is just a few miles from Wellesley and offers classes not only for potential engineers, but for all who want to use their minds to change the environment they live in. Olin has a team-based, project-oriented teaching style in which students directly apply lecture material towards solving real-world problems both inside the classroom and outside the machine shop. Wellesley students have taken a variety of classes at Olin including user-oriented, mechanical design classes, anthropology classes and are currently involved with projects that include Alzheimer's research and a robotic Land Rover LR3. Come learn more about these classes and projects and how to take advantage of cross registration with Olin.

Cross-cultural Research**National Identity and Social Conflict
(short talks) Pendleton East 139****King Philip's War and Historical Memory**

Kathleen Scorza '07, History

ADVISOR: *Nathaniel Sheidley, History*

King Philip's War, an Indian rebellion against the Massachusetts Bay Colony in 1675, was the deadliest war in American history. The war challenged social and cultural identities and suggested new answers to the question of what it meant to be Puritan, English, or Indian. This study considers the manner in which different historical figures recorded their

stories of the war and the role those stories played in constructing a more divided society. A Puritan woman held captive by Wampanoags, an English military commander, and a Native American patriot all saw the past in very different ways. Each was forced to consider the war's place in the larger story of New England's colonial past as well as in their cultural identity. Even while discussing the same conflict, each had a very different story to tell about what King Philip's War meant to their society.

Nationality and the Use of the Remote Past: The Case of Dmanisi, Georgia

Alia Gurtov '07, Anthropology

ADVISOR: *Philip Kohl, Anthropology*

There are few excavations in the modern world that can shake the foundations of human evolutionary theory like Dmanisi, Georgia, the earliest hominid site outside Africa. There are also few processes more capable of interfering with the objective interpretation of excavation findings than national ideology. For this reason, an investigation into the reciprocal influence of nation building and paleoanthropology is an ethical necessity. Today the excavations constitute a significant component of Georgian cultural heritage (e.g. *Homo georgicus*). This presentation considers ethnic, political, and religious factors in Georgian national identity in order to evaluate the influence of national context on the scientific contributions of Dmanisi. (Research supported by a Jerome A. Schiff Fellowship, Office of the Dean of the College, and the Goldman Undergraduate Research and Travel Grant.)

Colonialism, Nationalism, and Modernization: Conflicting Discourses in Haifa under the British Mandate

Elise Duryee-Browner '07, International Relations and History

ADVISOR: *Lidwien Kapteijns, History*

Under the British Mandate for Palestine, various groups competed for control of space and resources in Haifa, a port city in what is now Northern Israel. Unlike the

other major cities in Palestine during the 1930s, Tel-Aviv-Jaffa and Jerusalem, Haifa's residents led a more cosmopolitan life; Jews, Arabs, and a surprising number of other ethnic groups lived and worked together in the city's old quarters. But increasing Jewish immigration to Palestine and the advent of the British Mandate caused major shifts in Haifa's structure. This project examines the process by which Haifa's cosmopolitanism gave way to sectarian violence and increasing segregation, paying particular attention to competition for ownership of space within the city, and the discourses used to maintain this dominance. (Research supported by a Schwartz Fellowship.)

United States' Noninterventionist Policies during the Spanish Civil War

Isabel Lecompte, '08, International Relations and History

ADVISOR: *Carlos Ramos, Spanish*

Ethical debates concerning intervention have a long history in the United States. From the Spanish Civil War to the conflicts in Vietnam and now Iraq, the defense of democracy has been one of the guiding principles for American actions. In the Spanish Civil War a democratically elected government was denied direct assistance, which resulted in a dictatorship, and possibly contributed to the onset of World War II. During the conflict, the United States' government assumed a position of neutrality and placed a moral embargo for arms that further jeopardized the Spanish republican government. The threat of communism, the policy of appeasement towards belligerent regimes, and isolationist feelings were expressed across different sectors of American society, which lobbied against intervention. Lessons from history can help us understand recent dilemmas and the impact of our decisions in the world.

11:00 – 12:10

Economic Issues**Global Crises, Global Solutions: Part II (short talks) Pendleton East 239**

Economists from around the world formed the Copenhagen Consensus in 2004 to set priorities in addressing global challenges and compete for a hypothetical \$50 billion to fund policies to address these challenges. In ECON 312 we simulated the Copenhagen Consensus by forming groups to examine the challenges and the proposals to address them. The aim of each group was to persuade our fellow classmates that our global proposal would make the greatest impact on the world's population.

Climate Change

Jolene Jones '07, Economics and Psychology, Grace Logan '08, Economics, and Sarah Swanbeck '07, Economics and Italian

ADVISOR: *Joseph P. Joyce, Economics*

In February, the Intergovernmental Panel on Climate Change released its newest report, concluding that global warming is “unequivocal” and that it is “very likely” due to human activity. Interestingly, the 2004 Copenhagen Consensus ranked climate change at the very bottom of the world's priority list. In our presentation, we will look at the panel's analysis of climate change and their approach to calculating the costs and benefits of mitigation. We will then focus on their three proposals for greenhouse gas emissions abatement: the Kyoto protocol, a carbon tax, and a valuing risk approach. Finally, we will look at weaknesses in the panel's methodology and potential improvements for future Copenhagen Consensus rankings.

Corruption

Jamie Rosen '07, Economics, Liz Kronick '07, Economics, and Laura Panebianco '07, Architecture and Economics

ADVISOR: *Joseph P. Joyce, Economics*

Corruption wastes resources and negatively influences growth rates as well as the allocation of money and services. Corruption also creates inefficiencies which detract from the attempts to address other global challenges. We discuss the importance of good governance and three causes of corruption: inequality, historical factors, and government structure. We also examine several specific cases of corruption, and propose policies to eliminate it.

Hunger and Malnutrition

Evadne Cokeh '07, Economics and Lauren Audley '07, Economics

ADVISOR: *Joseph P. Joyce, Economics*

The issue of hunger and malnutrition is a serious problem, with its effects spanning the course of many generations. With an estimated one billion people suffering from malnutrition, it is obvious why the United Nations has placed the eradication of extreme poverty and hunger as the first priority in its Millennium Development Goals. Hunger and malnutrition is a pressing issue that must be addressed immediately; debate around this issue centers on how best to address it. Research suggests that merely encouraging economic growth would not suffice; small-scale programs such as vitamin A immunizations or micronutrient dietary supplementation might also play an encouraging role in efficiently negating the unfortunate dilemma of hunger and malnutrition.

Literature and the Arts**Books and Beyond: An Interactive Teaching Presentation (interactive teaching presentation) Clapp Book Arts**

Jennifer Lee '07, History, Sarah Coutlee '07, History, Julie Fischer '07, Philosophy, and Catherine Helen Lee '08, Philosophy
ADVISOR: *Katherine McCanless Ruffin, Book Arts Program and Ruth Rogers, Special Collections*

Bookmaking is a craft with a long history. The feel of the paper, the engineering of book bindings, and the architecture of text and typeface design all come together to make the physical structure of a book as much of a work of art as the writing contained within it. In this interactive presentation, the Book Arts Lab will be open for visitors to see the evolution of the 500-year-old history of the printed book through examples from Special Collections. They will also be able to view past examples of student work and current works-in-progress, both in the form of broadsides and artists' books. Finally, visitors will be able to hand print their own copy of a limited edition bookmark.

A Kyōgen Play – The Tea-Sniffing Blind Men (long performance) Pendleton West 220

Lauren Lewis '07, East Asian Studies, Natsuko Hada '07, East Asian Studies, Agnes Chang '07, Media Arts and Sciences and Japanese Language and Literature, Carmen Farias '07, French, Kimiko Lange '08, Japanese Language and Literature, and Naomi Iwata '10, East Asian Studies

ADVISOR: *Carolyn Morley, East Asian Languages and Literatures*

Kyōgen is a traditional form of Japanese comic theater dating back to the fifteenth century. Satirical in nature, it mocks many aspects of the human condition across all social classes. In Zato-kyōgen plays, the subjects of ridicule are blind monks, espe-

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cially blind lute players known as the biwa-hōshi. Although to some the humor of Zato-kyōgen may seem crass and offensive, much of its charm can be found in its sheer absurdity. In *The Tea-Sniffing Blind Men*, priests gather in an attempt to indulge in the latest trends of the upper class. But what happens when they try their hand at the popular tea ceremony? Come find out as the students of JPN 351 perform *The Tea-Sniffing Blind Men*.

Storybooks Aren't Just for Fairy Tales: Explorations in Printmaking and Book Arts (exhibition) Jewett Gallery

Angela Leigh, *Media Arts and Sciences and Studio Art*, Patrice Payne '07, *Studio Art*, Megan Teckman '07, *Studio Art and Theatre Studies*, and Joo Hee Kim '08, *Studio Art*

ADVISOR: Phyllis McGibbon, *Art*

In this exhibition, we will display work that uses a variety of printing techniques, including lithography, etching, and letterpress, as well as the handmade book to create our own narratives and to describe our individual experiences. These independent studio projects consider the role of the personal as well as the use of narrative in the creation of a body of work. Each project is the result of self-directed studio research, focusing on themes that evoke our own understanding of identity and expressiveness. We also focus on the way that printmaking can generate ideas through sequence and multiplicity. With our independent sets, series, and handmade books, we hope to bring together aspects of the real as well as the imaginary and to show how they have shaped our own visual styles and creative approaches.

Original Creative Work

Identity through Performance (short performances) Jewett Auditorium

Strings + Jazz + Energy = Synergy!

Rebecca Shapiro '07, *Computer Science*, Rosie Linares '07, *Classical Civilization*, SuiLin Yap '08, *Economics and Mathematics*, Caroline Cariste '09, Rakeen Mabud '09, *Political Science*, Angie Xiong '09, *English*, Chindhuri Selvadurai '10, and Erika Boeing '10 (*Olin*)
ADVISOR: Paula Zeitlin, *Music*

While string instruments are well-known for elegant classical compositions and rollicking folk music, we will share with you the magic of a classical string ensemble (violin, viola, cello, bass) veering off from Bach and fiddle traditions to explore the world of improvisation. In this presentation, we invite you to discover the versatility of Synergy, an on-campus jazz string ensemble through its performance of

1. *Take Five* (Paul Desmond): an all-time 'cool jazz' favorite in quintuple time
2. *Blues for Oaktown* (Darol Anger): a rhythmic funky blues tune
3. *Cabana Cubano* (Bert Ligon): a catchy number in an Afro-Cuban style

Piano Accompanist: Vanessa Morris

Bollywood Ragas: The Use of Classical Raga Styles in Contemporary Bollywood Film Music

Priya Josyula '10 and Nimmi Ariyaratne '07, *International Relations and French*

ADVISOR: Neelima Shukla-Bhatt, *South Asian Studies*

The Indian raga, whose origins are traced back to antiquity, is both an art and a form of divine worship. Our presentation will introduce the origin and evolution of the Indian raga and explore how modern composers in India continue to use elements from classical ragas in contemporary film music. Through a brief original performance of a recent Bollywood film song,

we will illustrate not only how classical ragas continue to live on in contemporary popular music, but also how the raga style has been fused with jazz and pop elements to create a unique blend of music that is growing increasingly popular in South Asia as well as throughout the world.

Objecting to the Objectification of the Ideal Female Body by Painting (exhibition) Jewett Gallery

Beatrice Hunt '07, *Studio Art and Psychology*
ADVISOR: Elaine Spatz-Rabinowitz, *Art*

In my paintings, I hope to draw attention to the questions and contradictions surrounding the female body. I am objecting to the objectification of the ideal female form. As a young woman in today's society, I witness the confusion all females experience in understanding, respecting, and accepting their unique bodies. We are bombarded with mixed messages about what the body should or should not be, learning of both obesity and eating disorders. Women are conditioned to see their "imperfections" as blemishes. I want to convey the beauty I perceive in my models to urge them to appreciate, accept, and love their bodies. I am attempting to defy the conventional nude, where I am not painting their bodies for the viewer's visual consumption, but for my models. When I study my subject, the shapes, shadows, light, and forms become an object of true beauty. (Research supported by a Schiff Fellowship.)



11:00 – 12:10

Science and Technology

A Chemical Approach to the Treatment of Type II Diabetes Mellitus (panel) Science Center 104

Rachel Buglione-Corbett '07, Biological Chemistry, Elizabeth H. Kelley '07, Neuroscience, Leslie Kim '08, Biological Chemistry, Taylor Lenton '08, Chemistry, Kathryn Lipford '08, Biological Chemistry, Allison Perez '08, Biological Chemistry, and Margaret Thompson '08, Chemistry
 ADVISOR: David R. Haines, Chemistry

We are investigating the deficiencies in the insulin-induction pathway in type II diabetes mellitus. In a normal insulin-producing pathway, food enters the intestine and stimulates the production of small molecule GLP-1. GLP-1 then travels to the pancreas where it stimulates its receptor and results in the production of insulin. Insulin allows cells of the body to uptake glucose, whose metabolism provides the cells with the energy required to run the body. Type II diabetics show resistance to the level of insulin their body naturally produces. Our projects aim to determine the molecular mechanisms of the interac-

tions of GLP-1 and its receptor in the insulin-induction pathway in hopes of developing a more efficient therapeutic treatment for type II diabetes mellitus. (Research supported by NSF/REU, Staley Fund for Cancer-related Research, and Howard Hughes Medical Institute.)

Love That Dirty Water (short talks) Science Center 278

Tracing Lead from the Source to the Human System

Heather Clark '07, Environmental Studies
 ADVISOR: Daniel Brabander, Geosciences

Lead poisoning is the most common environmental disease that affects children in the United States, and it is entirely preventable. Environmental diseases disproportionately affect urban, poor, and minority communities, and this study seeks to address the lead contamination in Roxbury and Dorchester, MA. This study evaluated the complete urban life-cycle of lead with the goal of reducing exposure to residents who use their contaminated backyard gardens to grow produce necessary for their food security. One hundred and forty-one backyard gardens were tested and 81% had lead levels above the

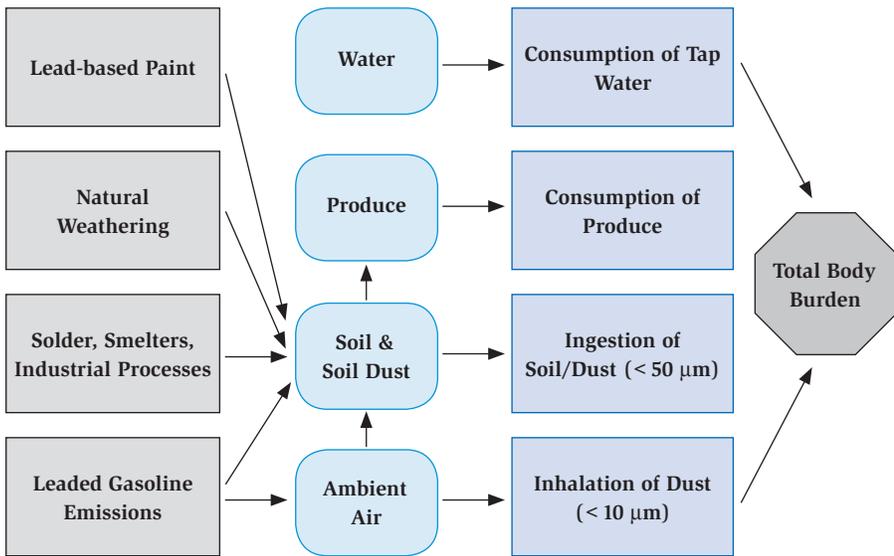
EPA action limit. It was determined that lead originated from lead-based paint and leaded gasoline emissions. This study quantified the input of lead to the human system from four major pathways of exposure (see figure). Remediation options were also tested and are currently being implemented on a large scale with the goal of preserving environmental and public health. (Research supported by a Schiff Fellowship and Howard Hughes Medical Institute.)

Characterization of Toxic Metal Transport Processes Downstream of the Tar Creek Superfund Site

Mei Ai Khoo '08, Geosciences
 ADVISOR: Daniel Brabander, Geosciences

The mine waste (chat) piles at the Tar Creek Superfund Site in northeast Oklahoma have elevated concentrations of Pb, Zn, and Cd and are a major source of metal contamination to the area. Runoff from these piles, acid mine drainage from underground mines, and leaching from chat within the streambed contribute to metal loading into Tar Creek, a principal drainage system of the Superfund Site, and this ultimately into the Neosho River, a serious concern for the public and ecosystem health of the area. This research aims to identify the processes that control the transport of these metals within Tar Creek and downstream Neosho River, the extent of that transport, and the level of contamination. Using x-ray fluorescence and x-ray diffraction techniques on river sediments, it attempts to read the geochemical fingerprint of the area's recent history. (Research supported by NIH and the Sara Langer Fund for Research in Geosciences.)

Urban Environmental Lead Cycle



Environmental Source → Exposure Medium → Exposure Pathway → Human System

11:00 – 12:10

Permeable Reactive Barriers as Long-term Solutions for Groundwater Remediation

Kaitlyn Shae Lucey '08, Biological Sciences
 ADVISOR: *Marianne Moore, Biological Sciences*

Permeable Reactive Barriers (PRBs) installed in flow paths of contaminated groundwater are successful at removing nitrate from groundwater via denitrification over the short-term. Last fall at the Marine Biological Laboratory in Woods Hole, I monitored a PRB with carbon substrate for denitrification and other carbon oxidation processes to determine the effectiveness of PRBs as long-term agents for groundwater remediation. I investigated methane and dissolved inorganic carbon concentrations under various tides, in the groundwater across the barrier to quantify rates of carbon oxidation, other than denitrification, occurring in the PRB, and to assess tidal influences on the barrier's function. Rates of methanogenesis ranged from 0.30 $\mu\text{mol L}^{-1}\text{d}^{-1}$ to 0.50 $\mu\text{mol L}^{-1}\text{d}^{-1}$, denitrification 2.50 $\mu\text{mol L}^{-1}\text{d}^{-1}$ to 240 $\mu\text{mol L}^{-1}\text{d}^{-1}$, and carbon oxidation 96 $\mu\text{mol L}^{-1}\text{d}^{-1}$ to 240 $\mu\text{mol L}^{-1}\text{d}^{-1}$. Neither methanogenesis nor denitrification dominate the carbon oxidation processes in the PRB; the barrier is greatly impacted by tides, and the metabolism of the barrier is highly dynamic.

Deciphering the Geochemical History of Lake Waban

Rachel Erdil '07, Environmental Chemistry
 ADVISOR: *Nolan Flynn, Chemistry and Daniel Brabander, Geosciences*

Lake Waban sediment appears to preserve a geochemical record of the Charles River watershed's complex history. Located downstream of Henry Wood's Sons Co. paint factory, the lake acted as an effluent depository for chromium and lead both during years of production, 1848–1910, and after abandonment. This study investigated the industrial history of Lake Waban through elemental and isotopic analyses of freeze cores from the deepest portion of the lake. Sediment sampling at

the inlet and outlet examined present-day mobility and transport of lead. Chemical analyses of sediments were conducted using X-ray fluorescence. Sediments were dated using gamma spectroscopy with ^{210}Pb and ^{137}Cs radionuclide tracers and Pb sources were “fingerprinted” using $^{207}\text{Pb}/^{206}\text{Pb}$ and $^{206}\text{Pb}/^{208}\text{Pb}$ isotopic ratios. Surface sediments throughout the lake show elevated Pb concentrations. Both Pb and Cr concentration profiles observed within sediment cores suggest a linkage between the deposition of toxic metals and industrial history of Lake Waban.

Flora and Fauna: Wellesley Sisters? (short talks) Science Center 396

Wellesley College Green Roof: See How Plants Adjust to Roof Living

Jing Cao '08, Biological Sciences
 ADVISOR: *Kristina N. Jones, Biological Sciences*

Green roofs, also known as vegetated or eco-roofs, are desirable for their various environmental benefits, including improved air quality, increased habitat area and preservation of biodiversity. Because little is known about green roofs in North America, this study looked at the success rates and physiological responses of native plant species growing under rooftop conditions. We chose 28 plant species native to the Northeast region, from herbaceous to woody plants and grasses, and cultivated them on the green roof atop the water treatment vault. All species survived the establishment period in this challenging growing environment and in the adjacent garden. Leaf size, plant stress, and biomass data revealed interesting plant acclimation strategies for life on a roof. (Research supported by the Mildred Kemper Memorial Fund.)

Plant Growth and Soil: Is Organic Best? How Soil Additives Influence a Plant's Well-being

Courtney Streett '09, Environmental Studies
 ADVISOR: *Kristina N. Jones, Biological Sciences*

The popularity of organic gardening is increasing, as this method of horticulture is healthy for both plants and humans. The Margaret Ferguson Greenhouse at Wellesley College uses both organic and chemical methods to control pests and promote overall plant health. The goal of my experiment was to determine which process was best for one species (*Calendula officianalis*) that, like many plants grown quickly for greenhouse display, is a magnet for pests. Calendulas were grown using different soil treatments consisting of compost, worm castings, and synthetic vs. organic fertilizer. Bloom counts measured which plants were best aesthetically and insects were monitored to determine which treatment was most pest resistant. A Chlorophyll A-Fluorometer ascertained plant stress and the shoot biomass demonstrated which treatment harbored the best growth. Recognizing the best soil conditions for this plant will help determine the extent to which future horticultural displays can be produced organically. (Research supported by a Sophomore Early Research Grant from the Office of the Dean of the College.)

Natural Solutions to Global Water Contamination: Investigating the Lead(II) Accumulation Capabilities of *Chlamydomonas reinhardtii*

Theodora J. Stewart '07, Chemistry, Erin Kim '09, Neuroscience, and Regina Edifor '09, Biological Chemistry
 ADVISOR: *Mary M. Allen, Biological Chemistry, Nolan Flynn, Chemistry, and Daniel Brabander, Geosciences*

The availability of clean freshwater is an issue of global significance. The depletion of this vital resource due to heavy metal contamination poses serious problems not only to the environment,

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but also to human health. The green alga *Chlamydomonas reinhardtii* has been shown to accumulate a variety of heavy metals and, thus, has the potential to be a successful tool for removing toxic heavy metals from freshwater ecosystems. The goals of this work are two fold: to study the interactions between lead(II) and *Chlamydomonas* and to create a novel method of *in situ* bioremediation using *Chlamydomonas* immobilized in alginate hydrogel beads. Any natural process that can be used to alleviate the current pollution of our freshwater resources with minimal impact to aquatic ecosystems should be more understood and this research is the first step in doing so. (Research supported by a Schiff Fellowship, by the Howard Hughes Medical Institute and by BellSouth Mentoring in the Sciences Gift.)

Social Analysis

Children and Parents (short talks) Pendleton East 339

Internal Distress and Nonsuicidal Self-injury among Adolescent Girls: Moderating Effects of Rumination

Christine Cha '07, Psychology and Spanish
ADVISOR: *Julie Norem, Psychology*

Nonsuicidal self-injury (NSSI) has been shown to occur frequently among adolescents in community and clinical samples. Dr. Susan Nolen-Hoeksema's research group at Yale University is conducting extensive research relating NSSI to different patterns of thinking. Preliminary results gathered last summer show a relationship between rumination (i.e. passive, persistent, negative self-focus) and the specific functions of NSSI among young female adolescents. Follow-up analyses upon completion of data collection also demonstrate a relationship between internal distress and NSSI functions. In this presentation, I will focus on our findings showing how rumination moderates the relationship between internal distress and specific functions of NSSI.

Incarcerated Mothers: Keeping the Mother-Child Relationship Intact

Sara Farber '07, Women's Studies and Political Science

ADVISOR: *Charlene A. Galarneau, Women's Studies*

Most American parents do not live with the fear that one day their parental rights will be terminated. Yet incarcerated mothers live with that fear daily. U.S. laws and their related policies and practices regarding termination of parental rights uniquely and unjustly impact incarcerated mothers causing them to be at high risk for losing their parental rights. Ideals and concepts about motherhood, criminality, race and class drive these laws and practices. My thesis argues that these ideals and concepts contribute to unjust parental right terminations for incarcerated mothers, thereby traumatizing the mothers and children involved. I offer a rethinking of those ideals and concepts and recommend alternative programs and policies that would minimize unjust parental right terminations for incarcerated mothers. (Research supported by the Office of the Dean of the College.)

Social and Emotional Learning in Schools: A Survey of School Principals

Diana Tubbs '07, Psychology

ADVISOR: *James B. Vetter, Program Director, Open Circle Program*

The Open Circle Program at the Wellesley Centers for Women promotes social and emotional learning in elementary schools. By training school teachers to implement its high-quality curriculum and approach, the Open Circle program helps children develop effective communication, impulse control and problem-solving skills and fosters caring classroom communities. Although teachers are the facilitators for the Open Circle program in their classrooms, school principals are key decision makers in the implementation of any school activity and, therefore, play an important role in the success of programs like Open Circle. The project administered an online survey to 407 principals in

schools that had been involved with Open Circle. The survey assessed principals' level of knowledge, level of use, and perceived value of the program as well as inviting suggestions for Open Circle to consider. Results of this investigation aim to guide future development of Open Circle's programs. (Research supported by Linda Coyne Lloyd.)

Effects and Reflections of Competitive Gymnastics on the Gendering of Girls

Jennifer Huddleston '09, Women's Studies and Economics

ADVISOR: *Nancy L. Marshall, Women's Studies/Wellesley Centers for Women*

The vast majority of sports and athletics have been perceived as a masculine talent and activity. Gymnastics remains one of the few sports that are unique in their cultural perception as feminine. With its emphasis on youth and femininity, gymnastics has a clear opportunity to affect the gendering of girls who participate in it. Through a series of observations and interviews as well as previous research on the issues, the unique and intimate relation between sport, society, and gender becomes clearly obvious.

Psychological and Political Takes on Our Bodies and Ourselves (short talks) Pendleton West 116

Body Image and the Two Faces of Narcissism

Rebecca Dautoff '07, Psychology

ADVISOR: *Jonathan Cheek, Psychology*

This study examined the relationship between body image and two faces of narcissism: overt or grandiosity-exhibitionism and covert or vulnerability-sensitivity. Narcissistic individuals include people whose lives focus on issues of self-definition, self-worth, identity, and autonomy. In its broadest interpretation, narcissism can be characterized as self-investment. In its most adaptive form, this self-investment serves to enhance psychological well-being and promote positive feelings about oneself. In its maladaptive form, narcissistic individuals are most often

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characterized by negative behaviors such as exaggerated self-entitlement, exploitation, and grandiosity. One hundred and ninety Wellesley students completed multiple measures of narcissism and body image. Results are expected to demonstrate a positive correlation between body image and overt narcissism and a negative correlation between body image and covert narcissism. (Research supported by the psychology department.)

Is Pornography Inherently a Form of Violence Against Women?

Elizabeth C.M. Diflo '08, Neuroscience and Women's Studies

ADVISOR: *Sealing Cheng, Women's Studies*

In the past 25 years, the U.S. pornography industry averages 10 billion corporate dollars per year. It has infused our economy and society, raising many questions about its power and influence on people's lives. What does modern U.S. society think about pornography? How does it shape our ideas and practices of sex? Given some recent pornography produced by women for women, could there be a new conception of it as a medium for *both* men's and women's erotic pleasure? These are some of the questions I will present in my dissection of the history of pornography, the recent debate, and the conflicting perceptions of pornography as sexual violence as well as a site of erotic exploration. College students were interviewed about their perceptions and use of pornography, and how it influenced their sex lives. I will also discuss conflicting assumptions about gender and sexuality, and their influence on U.S. society.

Japanese Girls' Culture and Boy's Love

Caitlin Pesout '07, Japanese Language and Literature and Biological Sciences

ADVISOR: *Eve Zimmerman, East Asian Languages and Literatures*

Boy's Love is a genre of Japanese girls' popular culture that depicts relationships between male characters with an emphasis on emotion, love, and personal interaction. Within this general framework is a large

variety of media and subject matter that Boy's Love, both as a cultural and commercial phenomenon, possesses. Previous research on the genre has largely failed to realize this variety. By analyzing several mainstream, contemporary examples of the genre, a more accurate depiction can be achieved. This study focuses on the history of Boy's Love manga, its unique cultural characteristics, and its reception in the global marketplace.

1:30 – 2:40

About Wellesley**Asian-American Studies at Wellesley College (panel) Pendleton West 116**

Mina Yu '09, Economics, Courtney Sato '09, English, Anna Matsuo '07, Political Science and Psychology, Jennifer Chou '08, Political Science and Women's Studies, Olivia Park '09, Neuroscience, and Sejal Babaria '09, Africana Studies and Urban Studies

ADVISOR: *T. James Kodera, Religion*

Within the last decade or so, higher education has been shifting to include a more pluralistic consideration of American society. However, while the increasing diversity of Wellesley College's student population seems to reflect this shift, the curriculum does not. As members of the Wellesley Asian Alliance, we chose to examine the curriculum through a survey on Asian-American studies. Our survey allowed us to assess the knowledge and interest in Asian-American studies on the Wellesley campus, and to examine the importance of a diverse curriculum to Wellesley students.

Green is the New Gothic: Wellesley's Greenhouses in the Twenty-first Century (panel) Pendleton West 212

Jillian Brooks '07, Architecture, Darrah N. Haffner '08, Environmental Studies and Physics, Emily H. Pighetti '08, Environmental Studies, Margaret H. Rossano '07, Environmental Studies, Kara Schimmelfing '07, Architecture, Laura van der Pol '07, Environmental Studies, and Anita Yip '07, Environmental Studies and Media Arts and Sciences

ADVISOR: *Elizabeth R. DeSombre, Political Science*

Wellesley's greenhouses provide a glimpse of nature's wonders from around the world, but more than a century of use has left them in grave disrepair. The dilapidated state of the greenhouses gives us the opportunity to rethink and expand the greenhouses' original purpose and struc-

ture. A building to house both the greenhouses and Wellesley's growing Environmental Studies program – which currently has no space of its own – is one idea to emerge from the early planning process for renovation and rebuilding. What better opportunity for Wellesley, which has not yet achieved renown for its environmental practices, to undertake a truly *green* project.

ES 300 has researched the possibility of creating a sustainable and cost-effective building that can illustrate the often imperceptible connections between our daily lives and the environmental resources on which we depend. Come learn what it means to be green, and give us feedback about this potential campus project!

Cross-cultural Research**Mixing it Up: Mapping Identities through Art (panel) Pendleton East 339**

Moeena Das '09, Sociology, Leticia Lopez '07, Sociology and Spanish, Paola Reyes '09, Psychology, and Steph Tung '09

ADVISOR: *Peggy Levitt, Sociology*

In the twenty-first century, more and more people belong to several communities in several places at once. They are redefining the boundaries of belonging, creating new kinds of memberships and citizenships that have the potential to challenge longstanding class and power inequalities. Through the Transnational Studies Initiative at Harvard University, we became involved in a series of events exploring the artistic and cultural products of transnational identities and their position with respect to ethnic and homeland art. The project includes three presentations by a Latino, South Asian, and Chinese artist, who examine the immigrant experience and enduring homeland ties through their work.

Economic Issues**Essentials of Life: Health and Housing (short talks) Pendleton East 239****The Impact of Welfare Reform on Immigrant Health**

Audrey Stern '07, Economics
ADVISOR: *Courtney Coile, Economics*

The 1996 Personal Responsibility and Work Opportunity Reconciliation Act involved substantial changes in immigrant eligibility for public assistance. Before the reform, immigrants had access to welfare programs on the same basis as citizens. Following the reform, immigrant access varied depending on their state of residence, as the reform let states decide whether to continue to offer immigrants access to welfare programs, and year of arrival, as only those immigrants who arrived after the reform's enactment were affected. As a result, immigrant eligibility for public benefits has been reduced to a greater extent than citizen eligibility and immigrants face far wider variation across states in their access to safety-net services. I explore these state-level differences in program eligibility to estimate the effect of welfare reform on the health of immigrant children using the Vital Statistics Linked Birth Infant Death Data Set.

The Changing Psychology and Demographics of the Housing Market

Olga Vidisheva '07, Economics
ADVISOR: *Karl Case, Economics*

The equity in their home is the largest asset in the portfolio of the vast majority of households. During the last 12 years, home prices have more than tripled. They are now falling. A continuing downturn in the housing market could have serious consequences for households and for the underlying economy. Strong evidence suggests that consumer spending by households responds to changes in wealth, including housing wealth. Furthermore, any drop in construction can have a direct

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effect on GDP growth. Finally, a sharp decline in prices would be likely to cause a rise in mortgage loan defaults and foreclosures and could cause serious problems for financial markets. This thesis is designed to shed light on two important aspects of price determination in the recent downturn: demographics and psychology. To do so, I sent out 1,000 surveys to a randomly selected sample of buyers and sellers in the Boston housing market during the time of the recent slowdown. (Research supported by economics department and Office of the Dean of College.)

Consumer Choice under Medicare Part D: Did Consumers Have Enough Information?

*Iuliana Pascu '07, Economics and
Mathematics*

ADVISOR: *Akila Weerapana, Economics*

Medicare Part D, the new prescription drug benefit program which started in January 2006, represents the single most significant expansion of public insurance programs in the U.S. in the past 40 years. To date, it offers subsidized drug coverage to 22.5 million seniors. The government delegated the delivery of the drug benefit to private insurers, arguing that market competition will help to drive prices down. Initially, there was concern that some states would not have enough plans supplied in order to ensure a competitive environment. But the opposite has happened, the set of possible options was wide ranging: in some cases people had to choose between more than 50 different plan options, with varying coverage benefits. Given the limited information available to the patients and the uncertainty inherent in this kind of decision, my project uses discrete choice models to analyze how people made choices from among these myriad programs. (Research supported by a Schiff Fellowship.)

A Crisis of Affiliation: Patient-Physician Interactions and Relationships of Power in Cancer Treatment

*Caroline Ong '07, Chemistry and
Anthropology*

ADVISOR: *Anastasia Karakasidou,
Anthropology*

Health-related issues and concerns are not dictated solely by science and technology, but are greatly determined by history, politics, economics, and power relations. As such, social and cultural contingencies not only influence the form and scope of diseases, they also largely shape a patient's and a community's experience of illness. This study primarily investigated the ways in which the experience of cancer is constructed through socially or culturally organized processes. To this end, the study examined the relationships of power within an oncology ward by delineating and deconstructing the objective and subjective perspectives of both patients and health care providers. Through an analysis of patient-physician narratives and nonverbal practices gleaned through participant-observation, literature research and interviews, the project provides an interpretation of and insight into the structures and processes of power, knowledge, and authority that inform and deform a patient's experience with cancer.

Literature and the Arts

New York City: Conceiving and Constructing a Metropolis (panel) Pendleton East 139

*Eliza Borne '09, Spanish, Leslie Tamura '07,
English, and Emma Tosch '08, English*
ADVISOR: *Kate Brogan, English*

New York City is home to millions: locals who enjoy man-made Central Park, superheroes like Superman and Batman who fight for justice in their super city, and tourists who have helped brand New York as *the* metropolis. Labeled an American democratic vision, Central Park, in reality, has had a highly politicized history that brings into question the accessibility and practical use of the iconic green space. Created by America's youth for a young, American audience, superhero comics demonstrate the artists' perceptions of urban life and influence the audience's perception of the city. And even as Henry James's "American Scene" sketches New York with a critic's pen, his poignant and damning travelogue stands at the threshold of New York's marketing and mass appeal: New York became a good itself. In looking at urban design, popular art, and literature, we expose the tensions within this world-class city's complex urban identity.

Medieval Dream Poetry and Visionary Translations (short talks) Pendleton West 117

Writing Destiny: Dido, Aeneas, and the Power of a Poet

*Madeleine Kennedy '07, Medieval/
Renaissance Studies and Italian Studies*
ADVISOR: *Kathryn Lynch, English*

In his *Legend of Good Women*, Chaucer devotes his most extensive narrative to the tragic story of Dido and Aeneas, their brief romance, and the betrayal that the Queen suffers. Despite bookend references to Virgil and Ovid, Chaucer drastically alters the tone and focus of the famous romance by removing one fundamental element: the

1:30 – 2:40

fated purpose of Aeneas' travels that is the eventual founding of the Roman Empire. While analyzing Chaucer's depiction of Dido, Aeneas, and their relationship, we will explore the author's modification of a seminal classical text, and the artistic gumption that such changes reflect in Chaucer himself. Finally, considering the historical circumstances surrounding the composition of both Virgil's *Aeneid* and Chaucer's *Legend of Good Women*, we will explore the effect of cultural and political influences on a romance that at its heart bears the mark of political sacrifice and the building of the empire.

Fame, Fables, and Fallacy: Language in Chaucer's House of Fame

Clarice Gan '08, *East Asian Studies and English*

ADVISOR: Kathryn Lynch, *English*

Chaucer's *House of Fame*, written around 1379-80, is arguably his most bookish, idiosyncratic effort: packed into its 2158 lines are the medieval science of sound and motion, epic lists and other rhetorical flourishes, and multiple allusions to other writers like Dante, Virgil, and Boethius. For all its quirks, *The House of Fame* is a lucid (albeit incomplete) exposition of the thematic concerns that underlie *The Canterbury Tales*, such as the capacity of language to clarify and obfuscate, the temporality of earthly fame, and the tension between "sentence" (earnest) and "solaas" (game). Drawing upon medieval grammatical theory, dream theory, and other sources, I will explore Chaucer's use of the medieval dream-vision – a literary form popular in his time – to ponder the nature of his artistic endeavor and language itself.

Language and Religious Imagery in the Gawain Poet's "Perle"

Averill Wyman-Blackburn '08, *Medieval/Renaissance Studies*

ADVISOR: Kathryn Lynch, *English*

The anonymous *Gawain*- or *Pearl*-poet of the later Middle Ages was a sophisticated poet of his times. In his religious dream-vision "Perle," a bereaved man sees a

vision of his daughter who died in early childhood, although she is now a queen in Heaven. In my presentation, I will explore the dynamics of the grieving narrator's conversation with the heavenly apparition of his departed daughter through the highly elaborate structure and language of the dialogue, as well as the religious aspects of the language and the poem's lush symmetry.

Chaucer's Portrayal of Women Before the Canterbury Tales

Jane Kim '08, *East Asian Studies*

ADVISOR: Kathryn Lynch, *English*

In his early poetry, Chaucer presents us with the range of women that we will later meet in the *Canterbury Tales*. For example, the Lady Whyte, in his first poem *The Book of the Duchess*, and Cleopatra, from the first tale in the *Legend of Good Women*, are opposites. They are both women who were loved by powerful and masculine men/warriors. However, the Lady Whyte is portrayed with no tangibility, substance, or voice. She is the ideal medieval woman. Cleopatra is her ironic inversion, portrayed as a powerful woman who was passionate and took an active role by her husband's side. The oppositions between these two women help us to interpret the roles they play in their respective poems and foreshadow the different images of the feminine that Chaucer will present in his later writing.

Foul Fowls: Decision and Indecision in Chaucer's The Parliament of Fowls

Amelia Willson '09, *English*

ADVISOR: Kathryn Lynch, *English*

Geoffrey Chaucer was a poet, an entertainer, an ugly guy. He was also a wishful thinker. In his dream vision, *The Parliament of Fowls*, he creates a fantastical world where birds convene to choose their mates on Valentine's Day. Through the focal point of a female eagle, Chaucer concerns himself with the question of choice – do we have it? How much of our choices are dictated by society? To what extent does decision, or indecision, raise

or lower one's power? Chaucer gives his fowl female the ultimate decision to choose a lover, but he leaves his reader wondering whether free will is simply an illusion. After all, it has been said that a dream is a wish your heart makes.

From the Highlands to the Islands in Story and Song (long performance) Ruth Nagel Jones Theatre, Alumnae Hall

J. Rachel Anderson '07, *Theatre Studies*, Susan Dobridge '07, *Theatre Studies and English*, Erica Nicole Richardson '10, Roheeni Saxena '08, *Peace and Justice Studies*, Megan Teckman '07, *Theatre Studies and Studio Art*, and Stephanie Waslohn '08, *English*

ADVISOR: Nora Hussey, *Theatre Studies*

Now a Ruhlman tradition, Wellesley College Theatre students will present scenes, stories and musical numbers from the 2006-2007 season. Through collaboration with performers and singers, student directors under the guidance of Nora Hussey, Lois Roach, and Melinda Lopez will bring the Ruth Nagel Jones to theatrical life. From Scotland to the Caribbean, the stories will resonate and reverberate.

"Towards the Empyrean Heights": The Wellesley College Opera Workshop in Performance (long performance) Jewett Auditorium

Heather Rich DS '07, *History*, Bess Connors '10, Kristen Cuneo '07, *Women's Studies*, Min Lew '09, *Music*, Siobhan O'Keefe '09, *International Relations and Economics*, Emily Peters '09, and Helena Pylväinen '08, *History*

ADVISOR: Andrea Matthews, *Music*

The MUS 240 Wintersession Opera Workshop course brought together seven students, two accompanist/coaches, and a voice instructor in a brief but intensive study of the many skills involved in singing and acting in opera. Among the issues touched on were developing a character through historical research and emotional imagination, period costuming,

1:30 – 2:40

physical and vocal poise and characterization, ease and expression in singing, dealing with props and movement while singing, and most of all, working together toward the common goal of performance. This concert puts these studies into action in arias and scenes by Mozart, Donizetti, Ambroise Thomas, Massenet, Puccini, Gilbert and Sullivan, and Gian Carlo Menotti.

Accompanist: Jenny Tang

Original Creative Work

Le Nouveau Palais de Justice de Paris – La Justice dans la Cité (exhibition) Jewett Sculpture Court

Emily Ottinger '07, Architecture, Manijeh Verghese '07, Architecture, and Katharine Law '07, Architecture

ADVISOR: Phyllis McGibbon, Art

The architectural competition for the design and masterplan of the new *Palais de Justice* in Paris took place early in the fall of 2006. This competition entailed the redesign of a previously industrial area in the thirteenth *arrondissement* in Paris. The site, across from Perrault's famous *Bibliothèque Nationale*, would have to fit into the overall development plan for the entire neighbourhood as a mixed-use development zone, within which a design for the new Parisian courthouse had to be situated. Entering this competition as an independent study, we thought it would be an opportunity to gain experience in the field of architecture. The entire proposal from the urban macrocosm to the courthouse microcosm was defined by a simple curve centered at the plaza of the *Bibliothèque Nationale*. Our project was about synthesizing the new with the old and allowing a palimpsest of the site's previous industrial legacy to remain. (Research supported by the Office of the Dean of the College.)

Science and Technology

Information Processing (short talks) Science Center 104

What Do You Mean, "On"? Learning Primitive Predicates for AI Planning

Vasumathi Raman '07, Computer Science and Mathematics

ADVISOR: Ellen Hildreth, Computer Science and Leslie Kaelbling (Electrical Engineering and Computer Science, MIT)

Performing a task in a complex world requires learning planning rules. These rules predict the result of actions performed in terms of some ontology, which may itself be learned from world stimuli. My thesis examines how representations of world stimuli can affect the learned ontology, which can in turn influence the quality of the planning rules. I consider how one might learn the definition of the primitive predicate *on* in a 3-D world of blocks, where the task is to build stacks of blocks. I study the role of visual information in determining whether an *on* relationship exists, using machine learning algorithms to learn the definition of *on* given training data from a perceptual study. I then use the definitions learned from different feature subsets to learn planning rules. The usefulness of these planning rules will determine the quality of each definition, and the relevance of the visual features used. (Research supported by a Schiff Fellowship.)

Expression of Emotions through New Media

Eylul Dogruel '07, Computer Science and Media Arts and Sciences

ADVISOR: Panagiotis T. Metaxas, Computer Science

Our current computer interface and media remains limited to the conventional duo of direct image (text, still image, video) and direct sound (music, audio track of the video). We rely on these two elements to describe the state of mind we are in and express ourselves but what if there were

another way? This media arts and sciences project aims to propose an alternative to the current interfaces by using peripheral noise, lighting, and smells to induce emotion. The talk will cover the making of the installation, the ideas behind it and as well as a brief evaluation of how effective this interface is based on the surveys collected from viewers. The location-based installation will be open for visitors before and after the talk in SCI E121B.

Cross-linguistic Syntactic Priming in Russian/English Bilinguals

Megan Gross '07, Cognitive and Linguistic Sciences and Russian

ADVISOR: Andrea Levitt, French

Are bilinguals simply two monolinguals in one person, or is the interaction between their two languages more complicated than that? My study addresses this question from the perspective of syntax, the arrangement of words to form sentences. Researchers of Spanish/English and German/English bilinguals found that hearing a sentence with a given syntactic structure in Spanish or German can encourage the use of the same syntactic structure in a subsequent English sentence. These results suggest that certain aspects of syntax can be shared between a bilingual's languages. My study attempts to replicate these findings in Russian-English bilinguals. In addition, while previous studies have examined bilinguals as a single group, my study compares early bilinguals, who grew up speaking two languages, to late bilinguals, who learned their second language after puberty. Such a comparison will shed light on whether different types of bilinguals organize the syntax of their two languages differently. (Research supported by Wellesley College Funds and a Jerome A. Schiff Fellowship.)

1:30 – 2:40

Molecules in Action (poster session) Science Center Focus

Exploring Co-crystal Properties of Dithiols

Andrea Johnston '09, Chemistry

ADVISOR: James H. Loehlin, Chemistry

Co-crystals are crystals that contain two different compounds held together in the tight packing of the crystal lattice. Previous research has developed many co-crystals that exhibit saturated hydrogen bonding, including those of 1,4-phenylene-diamine (PDA) and several diols. Such structures have not yet been found for the corresponding dithiols, however. Dithiol-diamine co-crystals are expected to exhibit saturated hydrogen bonding. This research project has focused on the formation of such co-crystals between PDA and 1,4-benzenedithiol, as well as several aliphatic dithiols. Information will be presented about the structure and properties of co-crystals that have been formed during the course of the research project. (Research supported by the BellSouth Mentoring in the Sciences Gift.)

GOLD Digger: Looking for Protein-Protein Interactions at the GOLD Domain of Patellin1

Mallory Kremer '07, Biological Sciences

ADVISOR: Kaye Peterman, Biological Sciences

The GOLD (*Golgi dynamics*) domain of Patellin1, a plant protein involved in cell division, is a putative site of protein-protein interactions. A yeast two-hybrid system was used to genetically screen an *Arabidopsis thaliana* cDNA library for physical interactions between unknown proteins and Patellin1 GOLD. Several positive results from the screen were selected for further study, including a polyubiquitin and the C2 (calcium lipid binding) domain and cytoplasmic region of the truncated transmembrane protein SRC2 (soybean resistant to cold 2). Experiments are in progress to confirm and characterize the physical interaction between the SRC2 fragment and Patellin1 GOLD. In addition,

testing the specificity of SRC2 interactions with other Patellin family members is underway.

Genetic Suppression of the Rapamycin Hypersensitivity of $\Delta clb5$ Budding Yeast by Phosphatase 2A and a Kinesin Family Motor Protein

Ruth W. Wang'ondy '07, Biological Chemistry and Sociology

ADVISOR: Jennifer K. Hood-DeGrenier, Biological Sciences

The drug rapamycin potently inhibits the Target of Rapamycin (TOR) kinase, a central controller of eukaryotic cell growth. Budding yeast cells that lack the S-phase cyclin gene *CLB5* ($\Delta clb5$) exhibit rapamycin hypersensitivity (*rap^{hs}*). We sought to elucidate the functional basis for $\Delta clb5$ *rap^{hs}* by screening for genes that suppressed this phenotype when overexpressed. *PPH22*, one of two yeast genes that encode the catalytic subunit of phosphatase 2A (PP2A), as well as *KIP3*, which encodes kinesin-related microtubule motor protein involved in mitotic spindle assembly and nuclear positioning, were partially able to suppress $\Delta clb5$ *rap^{hs}*. Our genetic results suggest potential functional cooperation between the *Clb5-Cdc28* cyclin dependent kinase, PP2A, and kinesin family motor proteins. A nuclear positioning investigation revealed additive effects of rapamycin treatment and *CLB5* deletion suggesting a role for the TOR signaling pathway in S-phase. (Funded by the Staley Fund for Cancer-related Research.)

An Enzyme's Continuing Search for the Perfect Dancing Partner: Flexibility Is Not Enough!!

Michelle Song '08, Biological Chemistry,

Meera Srikanthan '07, Biological Sciences and Classical Civilization, Lindsay Kua '08, Neuroscience, and Sabina Khan '09

ADVISOR: Adele Wolfson, Chemistry and the Office of Dean of the College

Thimet oligopeptidase (TOP) is a soluble metalloendopeptidase that has been isolated in a variety of cell types, such as brain, pituitary, and the testes. TOP

metabolizes a variety of bioactive peptides and is implicated in the regulation of many physiological processes. Results from several laboratories, including our own, suggest that TOP can metabolize an unusually wide range of substrates due to flexibility of a loop opposite the binding pocket. For this study, we have conducted kinetic assays in the presence of reagents that induce flexibility or rigidity. We have examined activity of TOP towards substrates of different sizes, and have engineered the enzyme itself for decreased flexibility. Our data show that increasing rigidity improves the activity of TOP towards a small substrate whereas increasing flexibility enhances the activity of TOP towards a larger substrate. (Research supported by Brachman Hoffman Fund, Howard Hughes Medical Institute, and National Science Foundation.)

Bacteria: Good and Bad (poster session) Science Center Focus

Use of ^{31}P and ^{23}Na NMR Spectroscopy to Characterize pH Homeostasis in *Synechocystis* sp. strain PCC 6803

Michelle Nguyen '07, Biological Chemistry and French

ADVISOR: Mary M. Allen, Biological Sciences and Nancy H. Kolodny, Chemistry

Under conditions of acid stress, cyanobacteria are able to maintain their internal pH at neutral levels as well as to raise the external pH to tolerable levels. Using ^{31}P NMR spectroscopy, we generated inorganic phosphate (P_i) titration curves, providing a method to use the chemical shift of P_i to determine intracellular pH. The intracellular pH data obtained via ^{31}P spectroscopy have confirmed the ability of *Synechocystis* sp. strain PCC 6803 both to maintain internal pH and to neutralize external pH. Using ^{23}Na NMR spectroscopy, future experiments will determine whether this occurs in part due to a sodium-proton antiporter. Current work has been focused on performing viability experiments using live-dead staining and fluorescence spectroscopy to examine cells under standard NMR conditions and more optimal condi-



1:30 – 2:40

tions using larger NMR tubes with light and carbon dioxide bubbling. (Research supported by the Howard Hughes Medical Institute.)

Increased Activity and Synthesis of Amino Acid Decarboxylases as an Acid Stress Response of *Cyanobacterium Synechocystis* sp. strain PCC 6308

Monica Fung '08, Biological Chemistry and Music and Kendall LaSane '09, Anthropology

ADVISOR: *Mary M. Allen, Biological Sciences*

Cyanobacteria, this planet's oldest known organisms, are photosynthetic bacteria important in maintaining oxygen in the earth's atmosphere. They are alkaliphilic and have been shown to increase the pH of their environment via several postulated means, including amino acid decarboxylation, when placed in acidic media. Amino acid decarboxylases are enzymes that catalyze the reaction in which a carboxyl group is removed from amino acids as carbon dioxide. Secretion of the resulting highly basic amine will raise the pH of the environment. We are using a carbon dioxide assay for decarboxylase activity and Western Blot analysis for decarboxylase synthesis in order to determine whether increased activity and/or increased synthesis of amino acid decarboxylases are part of the acid stress response of cyanobacteria. Current data have shown both increased decarboxylase activity and increased decarboxylase synthesis in acid stressed bacteria, suggesting that amino acid decarboxylation is involved in the acid stress response of cyanobacteria. (Research supported by the Howard Hughes Medical Institute and Bell South Mentoring in the Sciences Gift.)

Interactions of Wild Type Buforin II with Physiologically Relevant Lipid Membranes

Natalya Maharaj '09 and Evelyn Ooi '09
ADVISOR: *Donald Elmore, Chemistry*

Antimicrobial peptides are short proteins that are produced by a wide variety of organisms to kill bacteria and other microbial cells. Buforin II, a 21-amino acid peptide isolated from the stomach of the Asian toad *Bufo bufo gargarizans*, is one such peptide, which enters its target cells and destroys them through subsequent binding to DNA. Our research focuses on how buforin II interacts with these lipid membranes. We examined the interaction of buforin II with lipid membranes of varying chemical characteristics and concentrations. Previous work in the Elmore lab has considered interactions with membranes consisting of only phosphatidylcholine and phosphatidylglycerol. However, our studies include two additional lipids, phosphatidylethanolamine and phosphatidylserine, which allows us to study how buforin II interacts with more physiologically relevant membranes. By analyzing these interactions, we hope to further elucidate the mechanism by which buforin interacts with and enters cells. (Research supported by the Office of the Dean of the College and BellSouth Mentoring in the Sciences Gift.)

Application of a Transmembrane Potential in Molecular Dynamic Simulations of Buforin II•Membrane Interactions

Nana Liu '07, Biochemistry
ADVISOR: *Donald Elmore, Chemistry*

In addition to the complex immune system that organisms employ to deal with foreign objects and diseases, a more basic form of host defense consists of small antimicrobial peptides. One such peptide, buforin II, a more potent form of the buforin I peptide isolated from the Asian toad *Bufo bufo gargarizans*, enters the cell via formation of pores in the cell membrane. In order to better understand the membrane translocation mechanism of buforin II on a

molecular level, we have performed molecular dynamics simulations of buforin II-lipid membrane interactions using GROMACS. By applying a transmembrane potential, we have biased the entry of buforin into the membrane on the simulation timescale. In an age where bacterial resistance to drugs and antibiotics increases rampantly, studying antimicrobial peptides is important as they demonstrate promise as novel therapeutic agents, possessing a broad range of activity against bacteria, fungi, protozoa, viruses, and even cancerous cells. (Research supported by the Office of the Dean of the College.)

Animal Physiology (poster session) Science Center Focus

Progesterin Receptor Expression in Rat Brain and Uterus

Stephanie-Lydia Njemanze '09, Political Science

ADVISOR: *Marc J. Tetel, Biological Sciences*

The steroid hormone, progesterone, acts in the brain to influence a variety of events, including female reproduction in rodents. Progesterone elicits many of its biological effects by binding to intracellular progesterin receptors (PR) in specific brain regions. PR is expressed as two molecular forms from the same gene, full length PR-B and the truncated PR-A. My research involves developing Western blots for PR in the rat brain and uterus, a technique to determine PR protein expression. Recently, our lab has explored protein-protein interactions to determine other proteins, or coactivators, that are necessary for hormone-dependent gene expression. My project will extend this work to PR action in the brain. We hope to identify new coactivators that participate in hormone action in the brain and uterus. Further knowledge of hormone action may increase our understanding of mechanisms connected to hormone-dependent diseases, such as uterine and breast cancer. (Research funded by BellSouth Mentoring in the Sciences Gift.)

1:30 – 2:40

Role of Potassium Ion Channels in the Survival of Goldfish without Oxygen

Sarah D. Park '08, Neuroscience

ADVISOR: *John S. Cameron, Biological Sciences*

Compared to other vertebrates, goldfish (*Carassius auratus*) are unique in their capacity to endure for up to five days with no environmental oxygen. Previous data from our laboratory suggest that the activation of specific ion channels is one factor that helps to protect vulnerable tissues under low oxygen (hypoxic) conditions. Hypoxia-induced activation of ATP-sensitive potassium (K_{ATP}) channels in the heart, for example, may serve to increase tolerance of low oxygen. The purpose of this study was to resolve the mechanism by which this channel is activated when oxygen levels are low, and, specifically, to assess the role of nitric oxide (NO)-sensitive guanylyl cyclase (GC) and protein kinase G (PKG) in channel opening. Our data suggest that increased activity of GC is involved in the opening of K_{ATP} channels, but that this response is independent of PKG. (Research supported by the Office of the Dean of the College and the Howard Hughes Medical Institute.)

Social Analysis

Nationalism (short talks) Science Center 278

Chinese Nationalism in U.S.-China Relations: Benign or Malign?

Yi Kwan Chu '07, International Relations

ADVISOR: *Katharine H. Moon, Political Science*

What is Chinese nationalism? How do the West and the U.S. perceive it? How does it affect China's foreign relations? Many International Relations scholars describe Chinese nationalism as aggressive and hence detrimental to U.S.-China relations. By analyzing two cases – the U.S. bombing of the Chinese embassy in Belgrade in 1999 and the Spy plane Collision on Hainan Island in 2001 – this project seeks

to document and explain how domestic legitimacy concerns and relative power constraints influence China's foreign policy choices rather than expansionist or hegemonic ambitions. The research shows that new Chinese nationalism implies popular awareness of and, to some degree, mass participation in politics. Consequently, nationalism has become a constraint in China's foreign policy, limiting the Chinese state's ability to make foreign policy decisions at its will.

France in the Edwardian English Popular Imagination

Ariella Huff '07, History

ADVISOR: *Frances Malino, History and Jewish Studies*

Throughout centuries of military and political rivalry, France has served as mirror, model, and challenge to English self-perception. During the early years of the twentieth century, however, the *Entente Cordiale* enabled the nascent development of a deep and enduring political alliance. In a reflection of political change, this climate of friendship before the First World War facilitated the burgeoning of the contemporary relationship between the English and the French publics. Drawing upon original research from a wide variety of sources, this talk will address the effects of this new political reality on popular English perceptions of their old rivals across the Channel, focusing on the prominent themes of politics, art, and culture. In addition, I aim to show how shifts in perceptions of France reflected Edwardian England's changing conceptions of its own national identity. (Research supported by the Henry Schwartz Honors Fellowship.)

Soccer Mania: How a Pastime Has Rebuilt German Nationalism

Angela Monika Altvater '07,

International Relations

ADVISOR: *Stefan W. Wiecki, History*

This presentation analyzes the way in which soccer helped to rebuild German nationalism in the post-World War II era. After the defeat of Nazi Germany in 1945, the German people lost all sense of pride in their nation. Far more than a national pastime, German soccer gave the country a renewed sense of patriotism beginning with the World Cup victory in 1954. When Germany successfully hosted the World Cup in 1974, it proved to the international visitors that it had become a welcoming and democratic country. After German reunification, a united national team of East and West Germans went on to win the World Cup in 1990. In 2006, Germany again played host to the World Cup and, for the first time since 1945, German flags decorated everything from shop windows to cars to strollers. This type of healthy patriotism, standard in most countries, is a revolutionary change in post-war Germany.

The Failure of East Germany and Its Aftermath from a Generational Perspective

Ana Ila '09, German Language and Literature

Literature

ADVISOR: *Thomas Nolden, German*

For post-World War II generations, the German Democratic Republic (GDR), East Germany, was a solution to the problem of Nazism and a path towards socialism. However, later generations felt that the GDR and its institutions (especially the "Stasi") took their political freedom away as the system required sacrifice of ideology and lifestyle. Hence, members of the younger generations wanted the system to be replaced. However, the reunification of Germany did not succeed in integrating the younger generations of East Germans into the newly established society. The attempt of German institutions to identify ex-Stasis and prosecute them when possible dis-

1:30 – 2:40

rupted the process of creating a common culture already disturbed by fifty years of separation. Since the older generations did not solve the problem, the young ones are left unassisted in this transition.

Perceptions and Human Interactions (poster session) Science Center Focus

Decision-making Determinants in 2x2 Global Games: Some Experimental Results

Chenyang Zhang '07, Economics and Mathematics

ADVISOR: *Susan Skeath, Economics*

Many important economic phenomena are modeled as coordination games. For example, bank runs and currency crises can be modeled as coordination games with incomplete information about payoffs; this type of game is referred to as a “global” game. Most of the existing work on global games is theoretical and few experimental results have been reported. I designed an experiment to test whether players perform as the theory predicts in a 2x2 global game and to determine whether behavior converges to the complete information equilibrium. The experiment results show that the mere existence of uncertainty regarding payoffs has an enormous impact on player behavior and that player behavior does not conform to the theoretical prediction. I propose several explanations for the observed behavior. Because the 2x2 game serves as the most basic model of the generalized multiperson global game, the experimental results have important implications for building financial models. (Research supported by the Office of the Dean of the College.)

Perceptions of Others Based on Meal Type and Emotional State

Lisa Byers '07, Psychology, Katie Congress '07, French and Psychology, and Christine Wang '07, Psychology and Economics

ADVISOR: *Steven Schiavo, Psychology*

This study examined the effects of perceptions of others based on what they ate, and what their mood was at the time of the meal. Female participants provided impression ratings through a questionnaire for a female target. The target was presented as being in a positive or negative mood as influenced by an external event, and as eating either healthy or unhealthy meals during that day. The target was perceived as having more positive characteristics overall when she ate healthier meals. Her mood at the time, as influenced by a specific external event, had a greater impact on specific personality characteristics. The interaction between her mood and what she ate also influenced perceptions of her, including perceptions of physical activity and how concerned she was about her general health. Results are discussed in terms of how perceptions of others vary based on what someone eats and his or her mood at the time of the meal.

An Exploration of the Problems Facing the Green Building Industry and LEED Certification

Sophie Nitkin '10

ADVISOR: *Marcy Thomas, Biological Sciences*

As environmental issues become a leading concern of many Americans, the impact of their living spaces on the environment does as well. Environmentally conscious design and construction of commercial and residential buildings is growing as a trend worldwide. With the emergence of new industries and practices many problems surface, especially the methods to recognize worthy achievements. LEED (Leadership in Energy and Environmental Design) certification serves as the unparalleled method for recognition of buildings with a strong environmental consciousness

in design and implementation. This project explores the problems facing the building industry and the environment with regard to construction and LEED certification, while addressing the possible solutions to improve the undeniably strong future of the green building industry.

3:00 – 4:10

Cross-cultural Research**You Went Where? Painting Lessons with Mauritanian Artists (exhibition) Jewett Gallery***Melina Koutsis '09, Classical and Near Eastern Archaeology*ADVISOR: *Genevieve Hyacinthe, Art*

This exhibition will introduce you to the “Maison des Artistes,” an artist union unique in its kind in Mauritania. Through a sample of paintings, pictures, biographies, and a short “home-made” documentary, you will be able to meet these artists and hear their stories. This project is intended to truly be a cross-cultural experience. Not only will students be able to learn about a new country and culture, but their thoughts and impressions will in turn be shared with the “Maison.”

Being the Privileged “Other” Confronting White Privilege in India (panel) Pendleton East 139*Jo Murphy '09, Peace and Justice Studies and Classical Studies and Laura Diss '08, Peace and Justice Studies*ADVISOR: *Victor Kazanjian, Dean of Religious and Spiritual Life*

While traveling in India as part of the Wintersession program with the Peace and Justice Program, we, as two white women, found ourselves having to confront what it means to be white outside of the United States of America and specifically in India. “White” became much more than the color of our skin, or a box to check on paperwork, but rather a symbol of our background, our country, and our privilege. Though the focus of the course was nonviolent conflict resolution in India, we found that we ended up addressing conflict within ourselves just as much as in the structures and societies of India. During and after the trip, we worked on developing our sense of white privilege, and examining our motives and interactions during our time in India. At the same time, we came to realize the importance of

recognizing and confronting our white privilege.

Economic Issues**Market Forces (short talks) Pendleton East 239****Executive Stock Option Backdating and Corporate Governance***Susan Colton '07, Economics*ADVISOR: *Eric Hilt, Economics*

Over the past decade, corporations have increasingly relied on stock options as a means of compensating executives and aligning the incentives of managers and shareholders. The practice of stock option backdating, in which management manipulates the timing of option grants to the date of a particularly low stock price, has emerged as a topic of particular concern in the past year. Stock option backdating is an issue of corporate governance: it is the absence of sufficient shareholder protections that ultimately allows managers to have a greater amount of influence over the terms of their compensation, including the timing of stock option grants. In my thesis, I examine the extent to which strong shareholder protections mitigate backdating and suggest that companies with strong governance provisions have a lower incidence of backdating due to more stringent controls on management behavior, giving them less freedom to engage in opportunistic behavior.

Unraveling the Economic Volatility Decline Puzzle*SuiLin Yap '08, Economics and Mathematics*ADVISOR: *Karl Case, Economics*

Volatility of the U.S. GDP, its components, and other macro variables such as interest rates, have declined substantially since 1984. Possible explanations include improved monetary policy, better inventory management technology, financial innovations and milder shocks. This collaborative independent study under

Professor Case and a Federal Reserve Bank of Boston economist explores to what extent financial innovations can help explain the U.S. economy’s greater stability using a difference-in-difference method. We compare the change in volatility across different types of investment – business fixed, residential and consumer durables – with the change in financing frictions for each type. If financial innovations mitigate credit constraints and enable households and firms to better smooth consumption and production respectively, then an investment whose financing arrangements have seen more innovations should experience a larger decline in growth volatility. Furthermore, this study utilizes cross-country variations to explore if the same mechanism is at work in other G10 nations.

Spillover Effects of FDI on Financial Services: Does FDI Promote Local Financial Development in India?*ThuHang Tran '07, Economics and Mathematics*ADVISOR: *Malhar Nabar, Economics*

India liberalized its economy in 1991 following a severe balance of payments crisis. Major changes included a reform of the Industrial Licensing Policy, and the opening of the economy to foreign direct investment (FDI). Subsequently, during 1991 – 2001, the government further allowed FDI in more industrial sectors. How did this new inflow of capital contribute to India’s recent economic growth? Researchers have previously investigated the effects of FDI on economic growth through technology transfer, but not through the channel of domestic financial development. In this presentation, I examine whether FDI inflows have benefited local financial services. I will exploit the variation in FDI across districts in India, based on pre-existing industrial structure before liberalization and the timing of FDI reform for different industries, to establish whether bank branches and the volumes of credit and deposits increased more in districts that experienced greater FDI inflows.



3:00 – 4:10

The Impact of Financial Liberalization on Corporate Governance in Emerging Markets

Shirla Sum '07, *Economics and Philosophy*
ADVISOR: Joseph P. Joyce, *Economics*

Financial liberalization is the reduction of barriers to cross-border trade of financial assets. Lowering these barriers should theoretically result in increased international capital flows that raise GDP growth and reduce consumption volatility. More recently, economists have proposed alternative channels through which financial liberalization can bring about positive economic outcomes. One of these processes is better corporate governance. Improved investor protection provided by good corporate governance practices encourages investment at the micro level, which spurs economic growth. In my honors' thesis, I attempt to establish a causal link between financial liberalization and the quality of corporate governance. I use two measures of corporate governance quality, along with *de facto* and *de jure* measures of financial liberalization as independent variables to examine this relationship. I also use firm and country characteristics to control for other possible determinants of corporate governance.

Literature and the Arts

Twentieth-century Flute Techniques (long performance) Music Salon, Pendleton West 220

Victoria Lo '07, *Music and Mathematics*
ADVISOR: Suzanne Stumpf, *Music*

Key-tapping, extreme dynamics, and extended range – these are a few of the developments flutists and composers pioneered in the twentieth century. Continuing the trend initiated by the French flute pedagogue Paul Taffanel in the late 1800s, repertoire developed during this new era, innovated performance techniques and explored the instrument's dramatic potential. Concomitantly, flute-makers experimented with construction

methods and materials, such as platinum, to alter tonal qualities; models introduced would also become the inspiration for new works. The repertoire selected for this presentation, including works by Varese, Prokofieff, Hetu and others, illustrates how composers through the century worked to take full advantage of the expressive nature and unique tonal qualities of the instrument while highlighting the virtuosity of the musician.

Japan in Translation: Perspectives on Contemporary Women's Narrative (panel) Pendleton West 117

Cathleen Chuang '07, *Political Science and Japanese*, Clarice Gan '08, *East Asian Studies and English*, and Erika Uytterhoeven '09, *Biological Chemistry and Economics*
ADVISOR: Eve Zimmerman, *East Asian Languages and Literatures*

Japanese women's writing has undergone radical upheaval since the 1960s. Breaking with the traditional postwar themes of motherhood and personal identity, the likes of Wataya Risa, Tawada Yōko, and Ogawa Yōko have carved out a new kind of literary landscape, both stylistically and thematically. Wataya, Tawada, and Ogawa employ outrageous imagery, bizarre wordplay, and avant-garde narratives as they explore the themes of alienation, rebellion, and (mis)education in contemporary Japan. Besides examining this postmodern, no longer exclusively "Japanese" fictional space, the panel will also discuss the challenges and limits of rendering this new literary language into English. Works discussed are *Keritai senaka* (Wataya), *Kyūkei jikan* (Tawada), and *Sugar Time* (Ogawa).

Original Creative Work

Identity through Literature (literary readings) Wang Campus Center 413

A Reading of Original Children's Literature

Pam Watts '07, *Physics*
ADVISOR: Barbara Beatty, *Education*

If you like bedtime stories during finals, then you should come to my talk. I will be reading excerpts from my novel for young adults, *Silver like the Moon*. This semi-historical fantasy is set in a remote corner of North Wales in around 1420 and draws from my experiences studying the classics and physics. It explores a question that has continually nagged me while studying these subjects: what is the difference between seeing the world spiritually and scientifically? I will also talk about the business of writing for children, which I've explored this year through going to the Society for Children's Book Writers' and Illustrators' Winter Conference where both Susan Cooper and Katherine Paterson spoke and by working with other children's book writers throughout the year. (Project supported by the Office of the Dean of the College.)

Wash Your Hands Afterward

Lynn Sternberger '07, *English*
ADVISOR: Alicia Erian, *English*

"Writing is not necessarily something to be ashamed of, but do it in private and wash your hands afterwards." —Robert Heinlein. Robert Heinlein is right. Once you start writing, if you're challenging yourself at all, things are bound to get a little messy. Come hear one student read a short story from her senior thesis and speak about the merits and frustrations of the jumbled business of a creative writing thesis.

3:00 – 4:10

Wolf Song

Paulina Wolf '07, Neuroscience
 ADVISOR: *Marilyn Sides, English*

This novel follows a pair of twin girls, born to a Czechoslovakian family during the time of Communist ‘normalization,’ a time of forced calm preceding the revolution that reestablished democracy in the country. As they are growing up, the twin sisters struggle with a legacy of violence in their family. Slowly they start to draw parallels between the cycle of violence and struggle for control within their own family, and the broader political situation of twentieth-century Czechoslovakia. The twin sisters yearn to free themselves from their heritage, but freedom comes at the cost of losing their father. I will read excerpts from the opening chapter, in which the twins are born, and from the third chapter, in which the twins clash with the political forces of the country for the first time.

“Stacy,” a Short Story

Lauren Holmes '07, English and Creative Writing
 ADVISOR: *Alicia Erian, English*

A combination of memories, fiction, and a lot of dialogue, my creative writing thesis is a collection of short stories about Charlotte and her little brother Ben, based on my brother and me and our experiences from elementary school to twelfth grade. In “Stacy,” Charlotte and Ben move in with their dad, his new girlfriend Stacy, Stacy’s son Jared, and their cat Milky Way. Stacy likes to cook things like fried cauliflower balls and spaghetti pie and Jared likes to do drugs. Charlotte is forced to rely on Stacy when Stacy offers to teach her how to drive. (Project supported by Jerome A. Schiff Fellowship.)

**Defining Ourselves as Artists (panel)
Jewett 450**

Emily Arauz '07, Studio Art and Classical Civilizations, Kelsey van Beever '07, Studio Art, Beatrice Hunt '07, Studio Art and Psychology, Yuna Kim '07, Media Arts and Sciences and Architecture, and Vanessa Wiegel '07, Cinema and Media Studies
 ADVISOR: *Judith Black, Art*

As students, the term artist possessed a mysterious appeal and allurement, one which we would not fully comprehend until we attempted to become artists ourselves. Would our lives become intertwined with our artwork? Would we see the world only through shades of blue? Our thesis projects became the culmination of our exposure to studying and making art. Creating art requires reflection, contextual awareness, and discipline. Our yearlong thesis projects gave us the opportunity to explore a subject matter of immense personal interest. Through the different media of film, installation, painting, printmaking, and sculpture, we were each challenged to convey our conceptual ideas into a physical body of work. A prelude to our thesis exhibit will be on display in the Jewett Gallery. In this panel, we will discuss our experiences, navigating between being a Wellesley student and an artist. (Research supported by a Schiff Fellowship and Pamela Daniels '59 Fellowship.)

**The Magic of the Obvious: Enlivening
the Visual Vernacular (exhibition)
Jewett Gallery**

Elena English '07, Architecture and Classical Civilizations, Erin Brown '07, Media Arts and Sciences, Joanna Wu '07, Architecture, and Heather Albright '07, Studio Art
 ADVISOR: *Phyllis McGibbon, Art*

Often the magic of simple things – a line, a structure, a face – is overlooked or easily dismissed in our image-saturated culture. What can such obvious images reveal to you? Through our independent studio practice in drawing and photography, we

have been reconsidering the power of such familiar things to express the lively tension between what is perceived and what is implied in image making and viewing. Our explorations include: the dynamic nature of lines and their impact on our visual environment, the intersection and interaction of natural and man-made structures, and the question of how an artist visualizes an image, and how her sense of self is reflected back through that image. These projects represent the culmination of our art studies at Wellesley.

Science and Technology**Small Cells, Big Hopes: A Panel
Discussion of Stem Cell Biology
(panel) Science Center 104**

Candice A. Allister '07, English, Yvonne M. Gruber '07, Biological Sciences, Portland V. Knox '07, Biological Sciences, Jena M. Roche '07, Biological Chemistry, Rachel A. Schneider '07, Biological Sciences and Spanish, and Cecilia L.M. Yu '07, Biological Chemistry and Economics
 ADVISOR: *Kimberly O'Donnell, Biological Sciences*

Our panel of BISC 334 students will present the fundamental biological background necessary to understand the significance of stem cells in our world today. Since the initial isolation of human embryonic stem cell lines in 1997, the scientific community has sought to unlock the biological mechanisms of these amazing cells. Researchers hope that stem cells will one day be the answer to treatments needed to cure a wide-range of degenerative diseases that continue to affect millions. However, in order to reach this goal, it is important that we first understand the characteristics that make stem cells unique, how adult and embryonic stem cells differ, and what sources currently exist for these cells. In our presentation, we will address these questions, leaving our audience with a better understanding of stem cells and their potential applications in the future.



3:00 – 4:10

Experiences of a Magnetic Moment: MRI Research at Wellesley (panel) Science Center 396

Studying the “Enlightenment” of Crayfish using MRI

Jane Shin '09, Biological Chemistry and Olivia Hendrick '08, Neuroscience
ADVISOR: Nancy H. Kolodny, Chemistry

To validate the use of Mn^{2+} as a contrast agent for Magnetic Resonance Imaging (MRI) measurements of neural activity in crustaceans, an extra-cellular contrast agent, Magnevist, was administered to *Cherax destructor*. Differences between the MR images obtained using the two contrast agents demonstrated the selectivity of Mn^{2+} for neural tissues. Extra-cellular recording of the crayfish optic nerve was employed to ascertain the optimum intensity of light needed to produce a significant photoreceptor response. The resulting data aided in the production of a light source that best stimulated the crayfish visual system. MR images were then obtained using MEMRI, and the signal intensities of the neurons within the visual system were compared with and without stimulation by the light source. (Research supported by the Staley Fund for Cancer-related Research and the Howard Hughes Medical Institute.)

Using Nuclear Magnetic Resonance Spectroscopy to Understand Brain Chemistry in Rett Syndrome

Jessica L. Markham '07, Chemistry and Liz Hersman '08, Neuroscience
ADVISOR: Nancy H. Kolodny, Chemistry and Bonnie Ward, Neuroscience

Proton nuclear magnetic resonance (1H NMR) spectroscopy can be used to study neurologic diseases, such as a mouse model for Rett Syndrome (RTT), by providing quantitative information about the concentrations of neurochemicals in the brain. One goal of this research is to analyze the effects of choline supplementation on brain neurochemistry to determine if choline can be a possible treatment for RTT. Metabolite concentra-

tions were measured using *ex vivo* NMR spectroscopy to determine choline's effect on the developing brains. The second goal is to generate a developmental metabolic profile of RTT using *in vivo* spectroscopy in conjunction with MR imaging. As a pilot study, Wellesley's micro-MRI system has been used to longitudinally monitor whole brain development and regional brain metabolite concentrations at PD (postnatal day) 21/22, PD 35/36, and PD 42/43 in wild-type mice. (Research supported by the Staley Fund for Cancer-related Research and the Howard Hughes Medical Institute.)

Using Modified 3D-MDEFT and Surface Coils to Enhance Image Quality of MRI Studies at Wellesley College

Sahr Khan '09, Chemistry
ADVISOR: Nancy H. Kolodny, Chemistry

The MDEFT pulse sequence in MRI is a very fast imaging technique which gives three-dimensional images of the whole brain in a very short time. This technique is very useful as the images obtained using MDEFT have a better signal-to-noise ratio as well as improved contrast. The goal of this study is to change and streamline the parameters of the MDEFT pulse sequence to obtain better images in ongoing mouse and crayfish studies using the micro-MRI system at Wellesley College and to make the images less sensitive to inhomogeneity of the magnetic field. Another goal of this study is to design a surface coil resonating at 400MHz which would allow us to receive signals only from the regions of interest in the MRI, thus leading to higher resolution images. (Research supported by the Howard Hughes Medical Institute and the BellSouth Mentoring in the Sciences Gift.)

Using Magnetic Resonance Imaging to Monitor Neurodevelopmental Brain Changes in a Mouse Model of Rett Syndrome

Laura Huang '09, Chemistry, Mehvish Mehrani '08, Neuroscience, and Cassie Peitzman '08, Neuroscience
ADVISOR: Nancy H. Kolodny, Chemistry and Bonnie Ward, Neuroscience

Patients with Rett syndrome (RTT), a neurodevelopmental disorder, exhibit smaller brain volumes than controls. We monitored brain growth in *Mecp2^{lox}* mice, an animal model of RTT, by identifying the time-points at which brain development in RTT mice diverges from normal mice. Micro-MRI was used to monitor the volume of the whole brain, cerebellum, and motor cortex in this mouse model from postnatal day 17 to 41. Significant differences in whole brain and regional structures have been found between *Mecp2^{lox}* and wild-type mice. To improve delineation of brain structures and perform function studies on mouse models for diseases such as RTT, manganese-enhanced MRI is being developed. Delivery of the manganese through intraperitoneal injections was attempted to determine viable concentrations of the contrast agent and to monitor any behavioral or physical changes resulting from the injections. The manganese accumulated in the hippocampus and differences in intensities from other regions were determined using MRI. (Research supported by the Howard Hughes Medical Institute and the Staley Fund for Cancer-related Research.)



3:00 – 4:10

Creating Interactive Computer Games Using Multimedia Design and Programming (interactive teaching presentation) Jewett Media Lab 247

Agnes Chang '07, *Media Arts and Sciences*, Eylul Dogruel '07, *Computer Science and Media Arts and Sciences*, Stella Del Rosario '07, *Computer Science*, Caroline Sancken '07, *Media Arts and Sciences*, Anita Yip '07, *Environmental Studies and Media Arts and Sciences*, and Hitomi Yoneya '07, *Computer Science*
 ADVISOR: Panagiotis T. Metaxas, *Computer Science*

What does it take to create an innovative and successful computer game? Aside from needing to know how to write a computer program, creating the right Web interface is essential to creating good and effective computer-human interaction. After studying the different uses and effects of typography, color, and other basic design elements, we created various styles of computer games for people to play. Come learn about our design process and try your hand at our games as well!

Brain Function: Normal and Abnormal (short talks) Science Center 278

Adult Neurogenesis in the Crustacean Brain

Lauren Murphy '09, *Comparative Literature and Faith Kim '09, Neuroscience*
 ADVISOR: Barbara S. Beltz, *Biological Sciences*

The purpose of our study is to explore the various factors that influence adult neurogenesis in crustaceans, including crayfish (*Cherax destructor*) and lobsters (*Homarus Americanus*). By incubating the animals in a thymidine analog, BrdU (bromodeoxyuridine), we are able to track the birth of new neurons. BrdU is taken up in the S-phase of cell division and can be tagged with a series of antibodies using immunocytochemical techniques. The secondary antibody has a fluorescent tag that can be seen using the confocal microscope, which allows us to measure the extent of neuro-

genesis. In this experiment, we ablate one of the two olfactory organs (antennules) and monitor the effect on neurogenesis due to the loss of sensory input and increases in levels of nitric oxide in neural pathways ipsilateral to ablation. Students Colleen Kirkhart '09 and Rosa Lafer-Sousa '09 also participated in this study. (Research funded by BellSouth Mentoring in the Sciences Gift and National Science Foundation.)

Evaluating Synthetic Fragments of α -Synuclein for Influence on α -Synuclein Aggregation Behavior

Maggie Blattner '07, *English and Neuroscience*, Cynthia Crosswhite '07, *French and Chemistry*, and Kate Walsham '07, *Chemistry*
 ADVISOR: Julia Miwa, *Chemistry*

Parkinson's disease is a neurodegenerative disorder that is characterized by the depletion of dopamine linked to the presence of Lewy bodies in the substantia nigra. These fibrillar cytoplasmic inclusions are primarily composed of α -synuclein. The function of α -synuclein is currently unknown, but α -synuclein aggregation has been linked to the etiology of Parkinson's disease. The project goals are to identify key fragments of α -synuclein that affect aggregation and to identify key lysine residues that influence aggregation behavior. There are three phases in the project strategy: synthesizing fragments of α -synuclein and testing for inhibition of aggregation of the whole protein, replacing lysine residues with alanine residues in active fragments, and incorporating lysine residues modified with a small molecule into active peptide fragments. As the aggregation behavior in the presence and absence of the fragments is compared, we hope to increase the understanding of α -synuclein aggregation behavior in the progression of Parkinson's disease.

Comparing Locomotory and PDH Rhythms in *C. destructor* and *P. clarkii* to determine Exogenous or Endogenous Source

Garen Wolff '07, *Neuroscience and Elizabeth Marlow '08, Neuroscience*
 ADVISOR: Barbara S. Beltz, *Biological Sciences*

Circadian rhythms are endogenous cycles of activities oriented around a 24-hour period. This study is testing the relationship between locomotory rhythms and levels of Pigment Dispersing Hormone (PDH) in neurons and synaptic areas of the crayfish *Procambarus clarkii* and *Cherax destructor*. In previous studies, *P. clarkii* shows a locomotory rhythm in constant dark conditions (D/D) reminiscent of that present in 12hr light/12hr dark (L/D), suggesting that locomotion is driven by an endogenous circadian clock. In contrast, *C. destructor* is arrhythmic in D/D despite having a locomotory rhythm entrained to a 24hr clock while in L/D conditions. In this species, in L/D conditions, PDH levels cycle over a 24-hour period in specific neurons and synaptic brain regions. These data suggest that PDH may be an output of the endogenous clock. An assessment of PDH levels in parallel with locomotory rhythms will allow us to determine if there is a tight relationship between these and the endogenous clock. (Research supported by National Science Foundation.)

Social Analysis

Immigration, Labor, and Aid (short talks) Pendleton West 116

Female Migrants from Sri Lanka to the Middle East: Exploited Masses or National Asset?

Nimmi Ariyaratne '07, *International Relations and French*
 ADVISOR: David Lindauer, *Economics*

As much as ten percent of Sri Lanka's working-age women are presently employed in the Middle East as migrant domestic workers. Media reports highlight-

3:00 – 4:10

ing the various abuses faced by some of these women have led to widespread controversy over whether the Sri Lankan government should continue to encourage female migration for unskilled work abroad. Do these women choose migration, despite the perceived risks, because it is the best option available to them under given circumstances, or because they have poor access to accurate information about job opportunities, both at home and abroad, and thus have a misguided perception of migration? Based on interviews and household surveys conducted among returned and potential migrants in one district of Sri Lanka, I will examine the socio-economic impact of female migration at the micro level, and assess how temporary female migration has shaped rural households, for better or for worse. (Research supported by the IR Program and the Barnette Miller Fund.)

Learning, then Living Citizenship

Amanda Carlson '07, Anthropology
ADVISOR: *Julie Chu, Anthropology*

This project concerns the impact of the United States naturalization process on migrant understandings of personhood. In the post 9/11 political climate, much of the current debate over immigration is framed around undocumented immigration and border security. This project takes an alternative approach by investigating an often-overlooked area of immigration – the identity of legal permanent residents who wish to secure their status through naturalization. This project rests on the foundations of scholarly literature focusing on personhood, citizenship, and transnationalism, but ultimately seeks a greater understanding of how migrants, in the process of learning citizenship through a class, adopt these lessons outside of the classroom and live their own citizenship. Research for this project is being conducted through fieldwork with a grassroots organization, Centro Presente, in conjunction with their Citizenship and Naturalization Project, and involves direct contact with legal permanent residents

who are involved in advocacy, outreach, and adult education programs.

Help that Cripples: Foreign Aid and Cinema Industry in Senegal – A Historical Case Study of Dakar

Gladys Palmer Onyango '07, Africana Studies
ADVISOR: *Pashington Obeng, Africana Studies and Selwyn Cudjoe, Africana Studies*

Whether in cinema houses, in neighborhood/quartier video dens, or watching television at home, Africans are bombarded daily with thousands of foreign images. This conspicuous consumption is of concern in light of the crucial role that the moving image can play in shaping identities, providing social commentary, and creating jobs and other avenues of economic growth. This study analyzes the historical, social, economic, and political forces and structures that have reinforced the “colonization” of the screen in Senegal, a nation that once showed enormous promise in film production in the decade following independence. To what extent have French support, currency devaluation, and IMF Structural Adjustment Programs been used as indirect tools of industry intervention? Emphasized in this study as harbinger to change in the future is the emerging digital trend being adopted by younger filmmakers and the new possibilities created by its decentralization of knowledge and opportunity. (Research supported by the Office of the Dean of the College and the Multicultural Program.)

Human Rights and Abuses (short talks) Pendleton West 212

Karl Marx and the Anarchists: A Sociological Analysis of Intellectual Conflict

Sanja Jagesic '08, Sociology and German Language and Literature
ADVISOR: *Thomas Cushman, Sociology*

Karl Marx is notorious for his spiteful attacks on opponents and competitors. His intellectual battles with the anarchists

are especially demonstrative of the fundamentally conflictual – and even combative nature – of intellectual disputes. This spring semester I have studied three central figures in nineteenth-century anarchism and their intellectual responses and exchanges with Karl Marx: Mikhail Bakunin, Pierre-Joseph Proudhon, and Peter Kropotkin. Throughout the study of these three different intellectual disputes, I have explored examples of varied intensities of intellectual exchange. In this presentation, I will focus on one specific case study of the vitriolic political and intellectual battles between Karl Marx and Mikhail Bakunin, battles which Marx essentially won, with great historical consequences. My presentation is a sociological analysis of the various aspects and dimensions of intellectual conflict.

Marginalizing the Masses: Religious Persecution in Early Modern Europe

Jessica Allan '08, History and Peace and Justice Studies
ADVISOR: *Ryan K. Frace, History*

The Spanish Inquisition is well known as an abhorrent abuse of the legal system, of human rights and of the disenfranchised and marginalized members of society. What is not generally known is that during the Spanish Inquisition, the numerical majority of trials were not of Jews, Moors, Protestants, or even a combination – they were of Spanish Catholics. This interesting topic has not been extensively covered in existing historical writings and has not attracted the attention that it merits. The Inquisition existed originally to rout out Jews and Moors from Spain, but quickly spread to impact all of Spanish society. This presentation will focus on the prosecution of Old Christians in the Spanish Inquisition, and show the evolution of standards originally designed for Moors and Jews becoming the means to prosecute and persecute anyone who contested those in power.

3:00 – 4:10

Moral Crimes and International Law: Evolution of the Concept of Genocide in the Context of the ICTY

Robin Miller '07, Sociology

ADVISOR: *Thomas Cushman, Sociology*

For lawyers, there is no hierarchy of international crimes; war crimes and genocide are on the same level. For human rights scholars however, genocide is “the crime of crimes”; it is particularly reprehensible because it entails not only the destruction of a people, but the intent to destroy because of victims’ membership in a certain group. I explore the changing conception of genocide within the context of the International Criminal Tribunal of the former Yugoslavia (ICTY), focusing on how “genocide” is differentially defined and utilized by human rights scholars and lawyers. Analysis of ICTY genocide cases, scholarly writings on human rights, and interviews with ICTY prosecutors will reveal the current status of “genocide” as a moral and legal category. Additionally, my thesis examines the moral compromises inherent in prosecution of gross human rights violations. (Research supported by a Schiff Fellowship.)

The Social Construction of Evil: The Chinese Government’s Persecution of the Falun Gong Movement

Ching-Tien (Tina) Lee '07, Sociology

ADVISOR: *Thomas Cushman, Sociology*

The common thread that runs through political persecutions is that persecutors legitimize their actions by identifying the persecuted as evil. This presentation offers a sociological analysis of the social construction of evil. Through the use of ethnographic content analysis of *Xinhua*, China’s largest circulating newspaper, I examine how the Chinese government justifies its criminalization of the Falun Gong (a new religion banned in China since July 1999). By producing cultural narratives about the FLG that depict them as evil and dangerous, the Chinese government seeks to legitimize its actions against a group by constructing it as deceptive, fraudulent,

physically and emotionally harmful to individuals, and a social threat seeking to destabilize Chinese society.

Imagination, Creativity, and Self-construction (short talks) Pendleton East 339

The Nature of Imaginary Companions: Answers from Children and Parents

Madeline Harms '08, Psychology

ADVISOR: *Tracy Gleason, Psychology*

Nearly half of the children in the United States create imaginary companions at some point during their development, either in the form of invisible friends or personified objects. The current study examines children’s motives for creating imaginary companions and the types of relationships children maintain with these companions. Because children sometimes have difficulty articulating their thoughts, parents are an important source of information. However, parents view the relationship from an outside perspective and may therefore be unaware of certain details about their child’s imaginary companion. For this presentation, I examined data from interviews with preschool children and parents to determine the degree to which children agree with their parents, on both simple questions, such as the imaginary companion’s age and gender, and more complex inquiries into what the child likes about the companion. This analysis will help to determine the differences in parents’ perceptions in this field of research.

Internet Mediation of Romantic Relationships and Related Personality Constructs

Katherine E. Tyson '07, Psychology and English

ADVISOR: *Jonathan Cheek, Psychology*

Increasingly, rather than rely on face-to-face interactions to form and maintain romantic relationships, people use the Internet. Are particular personality traits related to a high frequency of Internet-mediated communication with one’s

significant other? This study examined the relationship between Internet-mediated communication in romantic relationships and shyness, introversion, self-presentation, and related personality traits. I administered a survey to female undergraduates to assess Internet use, personality variables, and attitudes about romantic relationships. I analyzed participant data based on shyness and introversion levels. I expected that highly shy, introverted participants would use the Internet to mediate romantic relationships with more frequency than extraverted, non shy participants, with other variables qualifying this main hypothesis. (Research supported by the psychology department and the Office of the Dean of the College.)

Creativity, Motivation, and Flow: The Interaction of Creativity and Flow as Assessed by Self-determination Theory

Kelsey Bundy '07, Psychology and French Language and Literature

ADVISOR: *Emily Cleveland, Psychology*

The researcher examined the relationships among self-determination, flow, and creativity. Students of the visual arts were asked to complete measures of general openness to experience and self-regulation. Participants were also asked to complete measures of intrinsic motivation and flow immediately following sessions in which they were engaged in the creative process. The products resulting from these sessions were then rated by independent judges for creativity. Results were expected to show that flow is most often accompanied by high levels of intrinsic motivation and creativity, and that individuals with high levels of openness to experience and high intrinsic motivation tend to be more creative. (Research supported by the psychology department and the Office of the Dean of the College.)

4:30 – 5:40

Literature and the Arts

**“Literature” and Identity (short talks)
Pendleton East 139****The Perversion of Christian Doctrine in Dostoevsky’s Late Novels***Erin Doherty '07, Russian and French*
ADVISOR: *Adam Weiner, Russian*

As both an artist obsessed with perfection and a fervent Christian, the Russian writer Fyodor Dostoevsky sought to reconcile his artistic principles with Christian dogma in his works, and refrained from indulging in overt preaching for fear of undermining their artistic value. Calling on his own transformation from doubt to faith, however, resulted in anti-Christian arguments so refined and artistically flawless that they threatened to devastate the Christian premise of his works. Responding to critical reviews of *Brothers Karamazov*, Dostoevsky wrote the following: “These fools could not even conceive so strong a denial of God as the one to which I gave expression...it is not like a child that I believe in Christ and confess him. My hosanna has come through a crucible of doubt.” In my senior thesis, I will examine the impact of this perversion of Christian doctrine on a modern reader’s interpretation of Dostoevsky’s late novels.

Film Festivals: Their European Origin, and the Snowballing Significance of Sundance*Caitlin Sherman '07, Cinema and Media Studies and American Studies*
ADVISOR: *Elisabeth Ford, English*

Film festivals have fascinated me since my high school involvement with the San Francisco International Film Festival. I have explored this interest during college by going to the festivals at Cannes and Telluride through various academic programs. With the ambition of attending the Sundance Film Festival, America’s preeminent showcase for “independent” cinema, I decided to conduct an independent study on the evolution and significance of this integral aspect of the film industry.

After considering the major festivals of Europe (Cannes, Berlin, Venice), I narrowed my course of study to solely focus on Sundance. In just 20 years, this Utah event has changed the face of film production and distribution. My research was consummated at Sundance, where I drew my own conclusions about the genre the festival has spawned and its permanent effects, both positive and negative, on the international film community. (Research supported by the Office of the Dean of the College.)

Identity and Community in William Faulkner’s *Light in August* and Zora Neale Hurston’s *Their Eyes Were Watching God**Ashira Greene '07, English*
ADVISOR: *Elisabeth Ford, English*

This research is the most recent work in my ongoing study of identity and society in literature. After writing on the stigma of the lisp and compiling materials for Professor Luther T. Tyler’s current course on Tennessee Williams and Truman Capote’s flamboyant public identities, I undertook an independent study of how both William Faulkner and Zora Neale Hurston took on the theme of community infrastructure in their novels. *Light in August* and *Their Eyes Were Watching God* present very distinct protagonists, Joe Christmas and Janie Starks, who, through discovery of their identity and voice, seek to define themselves as people and find an accepting community. However, after both characters have perpetrated acts of murder, it is Janie’s ability to appeal to her community that saves her while Joe’s inability to articulate himself leads to his graphic lynching. (Research sponsored by a Multicultural Research Grant.)

Social Landscapes Revealed in Documentaries on Latin America and Africa*Danielle Oh '07, Spanish and Economics*
ADVISOR: *Joy Renjilian-Burgy, Spanish*

This study examines international documentaries and other films that depict various aspects of the social, economic, and political landscapes of Latin America

and Africa. Through the cinema of mainly independent filmmakers, different issues are explored such as the struggle for human rights, connections between employment and housing, plus the intricacies of family relationships. Also examined will be the role of governmental and non-governmental organizations and popular movements in the ongoing fight to eliminate poverty. Revealed are numerous social issues plaguing contemporary Latin America and Africa.

Science and Technology

From Medicine to Remediation: Preparation, Characterization, and Applications of Poly (N-isopropylacrylamide)-based Hydrogels (panel) Science Center 104*Linda Guiney '09, Chemistry, Krystal Lee '08, Biological Sciences, Koko Takatori '07, Psychology, and Katherine Wagner '08, Chemistry*
ADVISOR: *Nolan Flynn, Chemistry*

Hydrogels are novel polymeric materials that can be synthesized for many purposes. Hydrogels swell in water and can be forced to contract and go through a phase transition under certain conditions, making them useful for carrying other materials, like small molecules, metal ions, and metal nanoparticles. The materials used in hydrogel synthesis strongly influence the gels’ behavior and ability to interact with other materials. Students will present work focused on using these gels in two different areas. Neutral and charged hydrogels have been studied for their ability (1) to load and release molecules of interest into solution and (2) to remove gold nanoparticles and copper ions from solution. The preparation and properties of the hydrogels used will also be examined. (Research supported by the Marie and John Zimmermann Fund and the Amabel Boyce James Fund for Summer Research in the Sciences.)

4:30 – 5:40

Explaining the Digital Divide: Topics and Issues from the Rise in New Computer Technology in Education (panel) Pendleton East 339

Caitlin Alcalá '10, Cassie McGurk '10, Marlie Philiossaint '10, and Lauren Rivard '10
 ADVISOR: *Pattie Orr, Computer Science and Information Services*

Students from the 2006 Pathways Program will present research and statistical data on the “Digital Divide” via basic Web pages from their CS100 student portfolios. The “Digital Divide” is an expression to describe the increasing gap in access to and use of computers in the American education system. Pathways students researched the problems associated with the use of technology, particularly in an educational setting, and will suggest solutions to address the future of technological education in the United States. The four presenters will discuss the following topics: the negative effects of excessive computer use on children’s individuality, behavior, activities, and standardized test scores; the increasingly prominent issue of cyber-bullying; and the impact of Internet filters on youth access to health information.

From Molecules to Morphology (short talks) Science Center 278

Molecules to Morphology: Two-toed Sloths Are Evolutionary Rebels

Anthea Maslin '07, Biological Sciences and Spanish
 ADVISOR: *Emily Buchholtz, Biological Sciences*

The two-toed sloth, *Choloepus*, violates a famous morphological rule: all mammals must have seven cervical vertebrae. The resulting morphology is highly variable and apparently without consequences to survival or general health. In this project we analyze vertebral variation in *Choloepus*, propose genes responsible for the variant morphology, and test our hypothesis through retrieval and comparison of sloth DNA sequences with the sequences of genes known to cause similar morphologies in experimental animals, such as the mouse.

Lung Morphology in a Mouse Model of Rett Syndrome

Yvonne M. Gruber '07, Biological Sciences
 ADVISOR: *Dennis Smith, Biological Sciences*

Rett Syndrome (RTT) is a neurodevelopmental disorder caused by a mutation in the X-linked gene for methyl-CpG binding protein 2 (MeCP2). Among the numerous autistic-like symptoms that affect RTT patients, breathing abnormalities are among the most severe, eventually causing death by respiratory arrest in up to 26% of patients. My investigation examines the structural basis for these respiratory symptoms in a MeCP2 knockout mouse model through a histological quantification of pulmonary cell morphology and an immunofluorescence protocol designed to determine the cellular localization of MeCP2 in the mouse lung. The findings of this study will help to elucidate the pathology of breathing abnormalities in RTT patients and could contribute to the development of new therapies that target the structural basis of these symptoms. (Research supported by the Georgeanne Miller Mulhern Student Research Fund.)

The Interaction of Buforin II with Lipid Vesicles of Varying Composition

Jessica Chen '07, Chemistry
 ADVISOR: *Donald Elmore, Chemistry*

Buforin II is a 21-amino acid cationic antimicrobial peptide isolated from the stomach tissue of Asian toad *Bufo bufo gargarizans* in 1996. It is hypothesized to target bacteria nonspecifically by crossing biological membranes without membrane permeabilization and binding to DNA. My research focuses on how lipid composition affects membrane binding and translocation of buforin II. The experiments performed utilize lipid vesicles as a model for biological membranes. To this end, I have used a fluorescence titration method to measure the binding of buforin II to lipid vesicles with varying compositions of phosphatidylglycerol and phosphatidylcholine, a negatively charged and neutral lipid. Current results suggest that the binding strength between buforin II and

the lipid vesicles increases as the amount of negatively charged lipids increase. I have also adapted a biotin-avidin based protocol to measure buforin II translocation, across lipid vesicles of varying composition. (Research supported by the Office of the Dean of the College.)

Biochemical Characterization of LNR-A of Human Notch1 and Notch2

Christina Hao '09, Biological Chemistry
 ADVISOR: *Didem Vardar-Ulu, Chemistry*

The Lin12/Notch Repeat (LNR) module is a small disulfide-rich protein module of 35 residues first identified in Notch receptors, which are proteins involved in controlling cellular differentiation in multi-cellular animals. The structural importance of the three tandem LNR modules in Notch function is revealed by recent structural data from the extra-cellular domain of human Notch2. Based on sequence alignments and preliminary biochemical information, LNR repeats are predicted to be also present in PAPP and Stealth proteins. Selective Ca^{2+} binding and a unique disulfide bonding pattern are critical for the correct folding of the prototype LNR module and are thereby suggested to be the determining features of an LNR module. This work focuses on producing and purifying the first LNR module from Notch1 and Notch2 using a bacterial expression system in preparation for studies to determine the binding affinities of various divalent atoms for these modules. (Research supported by BellSouth Mentoring in the Sciences Gift.)

4:30 – 5:40

Social Analysis**Global Health (short talks)
Pendleton West 212****The “Intra-household Flypaper Effect” in a Nutrition Program in Rural Guatemala***Mahnaz Islam '07, Economics*ADVISOR: *Ann Velenchik, Economics*

In developing countries, programs designed to improve child nutrition are widespread. The ability of such programs to improve the nutrition of individual children depends on how households choose to allocate resources among their members. If one child in a family is given a free meal in school, her parents might transfer some household food to other members of the family, such as her siblings. This implies that policies that target specific individuals in a household may be mostly neutralized by reallocations of the resource away from the child. On the other hand, the transfer may not be reallocated away, a phenomenon referred to as the intra-household ‘flypaper effect’ because the transfer ‘sticks’ to the child. This project seeks to explore the ‘flypaper effect’ using data from a nutrition intervention in rural Guatemala from 1969 to 1977. (Research supported by a Schiff Fellowship.)

Pockets, Plans, and People:**The Influence of Foreign Aid on Health Policy in Tanzania***Rhobhi Matinyi '07, Africana Studies and Political Science*ADVISOR: *Filomina Steady, Africana Studies*

Foreign aid in Africa is a subject that in recent years, with an increasing number of initiatives, has moved to the forefront of global forums. However, foreign aid is not new; aid and promises of aid have always made the headlines in African countries. But is there sufficient change? Is aid for or against the common man/woman? And if not, where is the problem? Is it being addressed? Are there any alternative routes to facilitate change? Using HIV/AIDS and malaria as case studies, my research tries to tackle these questions by studying the

impact of foreign aid on Tanzania’s health policy. I take a close look at the nature and structure of aid delivery, including the trends over the years, its conditionality, its administration, and its influence on the quality of the health system, and consequently the larger population. (Research supported by a Schiff Fellowship.)

**Cities, Bugs, Sugar, and Poverty:
What Is the Health of the World’s Urban Poor Really Like?***Rita Kuwahara '07, Peace and Justice Studies and Chemistry*ADVISOR: *Peggy Levitt, Sociology*

Health – a fundamental human right – and peace are inextricably linked. Yet as structural violence has become increasingly embedded within the cultures of today’s global communities, the world’s poorest are plagued by unacceptably high levels of morbidity and mortality. Although international organizations have attempted to address these injustices, the needs of the world’s urban poor are often neglected. My paper presents findings from research in Chennai, Accra, Boston, and Kampala, where I have been studying the underlying structural causes of health disparities. As I focus on the international incidence of and response to widely and lesser known communicable diseases and chronic illnesses, I will discuss what “progress” actually means within the context of global urban health and what more must be done to create a truly healthy society.

**Seventy Years Later: Reexamining the Spanish Civil War (panel)
Pendleton West 116***Victoria Sultani '08, Spanish, Ro Chin '09, Spanish and Economics, and Erika Kahn '09, Political Science*
ADVISOR: *Elena Gascón-Vera, Spanish*

In July 1936, a *coup d’état* staged by the Spanish National Army triggered a war that came to be known as the Spanish Civil War. More than a power struggle between two parties, the conflict originated in the clash of several ideologies and lasted almost three years. In our presenta-

tion, we will explore the effects of these ideologies in a social and political context. How did other European democracies and the United States respond? On the national level, how did the ideologies of the time mold the lives of women and families in Spanish society? Finally, what was the appeal of the anarchists, and were their revolutions successful? Through the use of film excerpts, posters and music, we will examine the societal impact of the war and the legacy it still holds today.

**What We Say and How We Say It (panel)
Pendleton East 239****Just What Do We Call You?: Addressing Professors at Wellesley***Colleen Hibbert '07, Cognitive and Linguistic Sciences*ADVISOR: *Andrea Levitt, French*

It’s a question that inevitably arises at the beginning of every semester: What should I call my professor? The process of arriving at an answer can be far from simple, but is the solution predictable? Are there unconscious factors that really determine what a student will do? This research begins to explore the ways students address professors at Wellesley College. Through a survey of students, I sought to discover the patterns behind the forms of address typically used, specifically focusing on the level of formality as indicated by the use of a professor’s first name. The results suggest that there may be a pattern that depends on the age, gender, and the nature of interpersonal relationships.

“Y’all Talk Funny”: Exploring Social Perceptions of Regional Linguistic Differences*Emily Cibelli '09, Cognitive and Linguistic Sciences*ADVISOR: *Andrea Levitt, French*

Regional variation is a natural part of language use. From unique grammatical constructions to different vocabulary choices, such variants are clearly evident in the English spoken across the United States. However, regional variation is not uniformly recognized by speakers, and

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some regions are more likely to be targeted as speaking “differently” than others. Why is the English spoken in some regions seen as a “standard,” while others are stigmatized, and what effect does this have on the speakers’ personal perceptions about their own regional usage? This research attempts to answer those questions by surveying speakers from the Southern and Midwestern states (braving the eternal “soda vs. pop” debate along the way) and get to the bottom of just who “talks funny.”

Secret Languages

Margaret McGovern '07, Cognitive and Linguistic Sciences

ADVISOR: *Andrea Levitt, French*

Secret languages can be used to achieve various social goals. They can be used for exclusion, for cementing friendships, and to both challenge and accommodate authority. The use of secret languages among children is very widespread, and an analysis of the similarities worldwide can tell us something about the structure of language. For example, the common use of the syllable as a unit underlines its importance. The implications of research on secret languages can help us to understand better how languages develop.

From Here to There: A Sociolinguistic Study on Gender and Direction-giving

Siena Napoleon '09, Cognitive and Linguistic Sciences

ADVISOR: *Andrea Levitt, French*

Men and women communicate differently, and even a task as simple as giving directions can show marked linguistic differences in syntax and word usage. As a final project for Sociolinguistics (LING 238), I decided to research gender differences in communication, especially in regard to direction-giving, and to replicate a study that tracked these differences by asking college-aged males and females to give directions to a specific location. To see if these gender-influenced linguistic differences generalized to other tasks, I asked my subjects to also give nonspatial

directions. My presentation will outline the method I used in my research and the results of my experiment as well as the conclusions that I was able to draw based on the data that I collected. So how did I get from here to there? Well, it depended on whom I asked!