

A Celebration of Student Achievement • April 30, 2003 • Wellesley College

**Conference Proceedings**

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## The Ruhlman Conference

It gives us great pleasure to welcome you to the 2003 Ruhlman Conference. Made possible by the Barbara Peterson Ruhlman Fund for Interdisciplinary Study, the Ruhlman Conference is intended to foster collaboration among students and faculty across the disciplines and to enhance the intellectual life of the College. The event will provide an opportunity for students, faculty, staff, friends, family, and alumnae to come together in celebration of student achievement.

The conference celebrates intellectual life by sponsoring a communal, public event where students will have an opportunity to present their work to an unusually wide audience. By providing an opportunity for public presentation of what is often a private, isolated activity, the conference will demonstrate that research can be part of the ongoing conversation in a community of scholars.

Attentive to the diversity of student interest and accomplishment, the Ruhlman Conference will include a variety of formats for the presentation of student work: papers, panels, posters, exhibitions, musical and theatrical performances, and readings of original work. Representing the work of nearly 300 Wellesley students, the 2003 Ruhlman Conference is organized around eleven major themes: The Arts; About Wellesley; Economic Issues; Gender and Sexuality; Multicultural Research; Political Development and Conflict; Analysis of Literature and the Arts; Science and Technology; Social Institutions and Processes; Self and Identity; and Change. We encourage you to experience the diversity and richness of student achievement at the conference and wish to express our thanks and congratulations to all students participating in this special event.

### The 2003 Ruhlman Committee

Alice Chen  
*Class of 2005*

Susan Cohen  
*Office of the Class Deans*

Ann Hamilton  
*Office of the Registrar*

Dana Huebert  
*Class of 2003*

Ann Huss  
*Chinese Department*

Nora Hussey  
*Theatre Studies*

Margaret Keane  
*Psychology Department*

Andrea Levitt  
*Office of the Dean of the College*

Judy Mitchell  
*Office of the Dean of the College*

Mary Pat Navins  
*Office of the Dean of the College*

Lynne Payson  
*Office of Summer Programs*

Glenn Stark  
*Physics Department*



## Thematic Overview

<b>About Wellesley</b>	An Assessment of Greenhouse Gas Emission of Wellesley College (panel)	9:30	Science Center 278
	The Power and The Glory?: Serving on College Government Cabinet (panel)	1:30	Science Center 278
	FirstClass Community vs. Wellesley Community: What's the Difference (panel)	3:00	Science Center 278
<b>Analysis of Literature and the Arts</b>	Reflective Writing (original readings)	9:30	Pendleton East 139
	Translating the World (paper session)	9:30	Science Center 256
	Literature and Life (paper session)	3:00	Jewett 450
	Icons of Contemporary Culture (paper session)	4:30	Jewett 372
	Music, Literature, and Fashion (paper session)	4:30	Pendleton East 339
<b>Change</b>	Papyrus to Print to Pixel: An Odyssey through the History of Written Communication (interactive)	9:30	Book Arts Room
	Global Feminism?: Women on the Web (panel)	1:30	Founders 120
	The World Scene (paper session)	1:30	Science Center 256
	Images of Globalization: Original Research Projects from Sociology 321 (panel)	4:30	Pendleton West 212
<b>Economic Issues</b>	Economic Tests of Value (paper session)	11:00	Pendleton East 339
	International Economics (paper session)	1:30	Pendleton East 139
	Economic Analyses of American Policies (paper session)	3:00	Pendleton East 139
<b>Gender and Sexuality</b>	Sexuality, Gender, and the Law (panel)	9:30	Pendleton West 116
	Gender, Self-Esteem, and Adolescence (paper session)	11:00	Science Center 264
	U.S. Women's Lives: Collective Memory and Biography (panel)	1:30	Science Center 264
	On the Edge: The Consequences of Latina Female Independence (paper session)	3:00	Science Center 264
<b>Multicultural Research</b>	Aspects of Antisemitism (panel)	9:30	Pendleton West 212
	From the Ridiculous to the Sublime: Images and Stereotypes (paper session)	11:00	Pendleton West 212
	Facing History: Slavery and Internment in the United States (paper session)	4:30	Science Center 264
<b>Political Development and Conflict</b>	Foreign Policy (paper session)	9:30	Science Center 396
	Danger and Conflict (paper session)	11:00	Science Center 396
<b>Science and Technology</b>	Proteomics: A New Approach to Systems Biology and Disease Treatment (panel)	9:30	Pendleton East 239
	Measuring and Modeling the Physical World (paper session)	11:00	Pendleton East 139
	A Digital Gallery of the Stars (panel)	11:00	Pendleton East 239
	Synthesis of Thiopeptides (panel)	11:00	Science Center 256
	Quantum Artistics (exhibition)	1:30	Jewett 372
	Tied Up in Knots (interactive/exhibition)	1:30	Jewett Sculpture Court
	Fun with Mathematics (exhibition)	1:30	Jewett Sculpture Court

	Four-Dimensional Art (exhibition)	1:30	Jewett Sculpture Court
	Factors Affecting Organelle Movement in <i>Arabidopsis thaliana</i> (panel)	1:30	Pendleton East 239
	LogoChip Projects: An Exhibition of Electronic Inventions (exhibition)	1:30	Science Center 392
	From Molecules to Cells: Lab Research at Wellesley (poster session)	3:00	Jewett Lobby
	Reflections on Science (paper session)	3:00	Pendleton East 239
	Probing Brain Structure and Function (panel)	3:00	Pendleton West 116
	Studies at the Micro Level (paper session)	4:30	Pendleton East 139
	Interdisciplinary Research Group Studying Adaptation in Bacteria (panel)	4:30	Pendleton East 239
	Lobsters, Crabs, and Killer Whales (paper session)	4:30	Science Center 256
<b>Self and Identity</b>	Questions of Philosophy (paper session)	9:30	Pendleton West 117
	Influences on Performance and Sense of Self (paper session)	11:00	Science Center 278
	The Individual in Context (paper session)	1:30	Pendleton West 116
	Art, Self, and Society (paper session)	3:00	Pendleton East 339
	All in the Family: Four Memoirs – Readings of Original Work (panel)	4:30	Pendleton West 116
<b>Social Institutions and Processes</b>	Contemporary Social and Economic Issues (poster session)	9:30	Jewett Lobby
	Perceptions of Nature – Readings of Original Work (panel)	9:30	Pendleton East 339
	The Hellion in Seat A (paper session)	9:30	Science Center 396
	Kingdom of the Gods? (paper session)	11:00	Pendleton West 116
	Are Our Schools Created Equal? (paper session)	1:30	Pendleton East 339
	Environmental Policy: Determinants and Effects of Environmentalism (paper session)	1:30	Pendleton West 212
	Health and Social Policy (paper session)	1:30	Science Center 396
	This Is Not Judge Judy (panel)	3:00	Founders 120
	Women and Political Issues (paper session)	3:00	Pendleton West 212
<b>The Arts</b>	Two Twentieth-Century Masterpieces (performance)	9:30	Jewett Auditorium
	Two Documentaries (exhibition/film)	11:00	Collins Cinema
	Image + Text (exhibition/panel)	11:00	Jewett 372
	The Human Figure: Form and Feeling (exhibition)	11:00	Jewett Gallery
	Making History: Creating Henry Purcell's <i>Dido and Aeneas</i> at Wellesley College (interactive/performance)	11:00	Jewett Auditorium
	Brighton Beach, Moscow, and All Points Between (performance)	1:30	Jewett Auditorium
	From Schubert to Strauss: A Concert of Nineteenth-Century German Lieder (performance)	1:30	Pendleton West 220
	Multiplicity in Mixed Media (exhibition)	1:30	Jewett Lobby
	Photo Class Arts 308 (exhibition)	3:00	Jewett Gallery/372
	Original Electronic Music (performance)	3:00	Davis Museum
	Exploration of Works for Two Pianos (performance)	3:00	Jewett Auditorium
	Bangles and Bhangra: Bringing the Beat (performance)	4:30	Jewett Auditorium
	Glorification and Humanization of Mary in Music and Literature (panel/performance)	4:30	Pendleton West 220

## Conference Schedule

### 8:30 - 9:30 Continental Breakfast

Continental breakfast served in Jewett Lobby, Pendleton Atrium, and Science Center Lounge.

### 9:30 – 10:40

#### About Wellesley

##### **An Assessment of Greenhouse Gas Emissions of Wellesley College (panel)** *Science Center 278*

Sara Baldauf-Wagner, Kristen Blanton, Nicole Duarte, Julia Dwojeski, Tuyet Catrina Huynh, Amy Leitch, Rebecca Owens, Sarah Schoenbach, Sally Spaulding, Abigail Tinker, and Juliette White, "It Ain't Easy Being Green: An Audit of Wellesley College's Greenhouse Gas Emissions"

#### Analysis of Literature and the Arts

##### **Reflective Writing (original readings)** *Pendleton East 139*

Seemi Syed, "Laundry and Other Stories"

Giffen Maupin, "*Ave Atque Vale*: Echoes of Grasp and Release"

##### **Translating the World (paper session)** *Science Center 256*

Clara Chi, "Translations of Various Classical Japanese Texts into English"

Tamara Mendelsohn, "Study in Translation and Culture: The Short Works of Leila Sebbar"

Heather Long, "Chaucer for Children: The *Canterbury Tales* Meet Disney"

#### Change

##### **Papyrus to Print to Pixel:**

##### **An Odyssey through the History of Written Communication (interactive)** *Book Arts Room*

Julia Collins, Jamie A. Eidsath, Katie Grenzeback, YingYing Hou, Dawn Kim, Bethany Templeton, Jennifer Langer, Amanda Severin, Jennifer Starkey, Erin Stadler, and Sara Simons, "Papyrus to Print to Pixel: An Odyssey through the History of Written Communication"

#### Gender and Sexuality

##### **Sexuality, Gender, and the Law (panel)** *Pendleton West 116*

Lauren Siemsen-Newman, Erin E. Richardson, Ariel S. Greenblum, and Lynda Pinheiro-Pires, "The Changing Law, the New Family, and the State"

#### Multicultural Research

##### **Aspects of Antisemitism (panel)** *Pendleton West 212*

Lacey A. Feldman, Rebecca A. Goldenberg, Susan M. Harvey, Rachel Isaacs, Jessica LeRoy, Keren A. Rosenfeld, Lauren M. Ullman, Karen E. Wabeke, and Jessica S. Bernfeld, "Aspects of Antisemitism"

#### Political Development and Conflict

##### **Foreign Policy (paper session)** *Science Center 396*

Morgan Courtney, "Allied but Not Aligned: France and American Foreign Policy"

Meghan M. Knake-Timko, "Alliance or Institution?: The Future of NATO"

Colleen Murphy, "Toward a New Foreign Policy for Africa: Democratic Expansion or Empty Rhetoric?"

Sudha Krishnan, "Democratic Challenges in Latin America: From International Interests to Internal Power Politics"

**Science and Technology****Proteomics: A New Approach to Systems Biology and Disease Treatment (panel)** *Pendleton East 239*

Hong-Ru Chen, Caitlin Conboy, Estelle Lin, Felice Lin, Andrea Nichols, Zoe Rosenbaum, Beza Seyoum, and Stacey Wirt, "Proteomics: A New Approach to Systems Biology and Disease Treatment"

**Self and Identity****Questions of Philosophy (paper session)** *Pendleton West 117*

Monica Link, "That Does It!: An Aristotelian Analysis of the 'Last Straw' Reaction"  
 Judy D. Cueva Alegría, "George Berkeley's Idealism and the Nonexistence of Matter"

**Social Institutions and Processes****Contemporary Social and Economic Issues (poster session)** *Jewett Lobby*

Rachel Cheng, "Gender and Ethnic Stereotypes: Barriers to Success Faced by Minority Women"  
 Lizzie Bell, "Friedrich Nietzsche: Anti-Semite and Philosopher of the Third Reich?"  
 Katherine Collins and Morgan Wells, "Young Children's Understanding of Marriage Conventions"  
 Tina Wang, Casey Bieberich, Suzanne Bonfiglio, Kristina Chan, Lyntonia Coston, Sarah Garrett, Eliza Heaton, Kathryn Isom, Nadya Jaworsky, Christina Locke, Jennifer Longfellow, Devon Mayhugh, Tam-Linh Nguyen, Linda St. Pierre, and Kirsten Wisneski, "Debunking Poverty Myths"

**Perceptions of Nature – Readings of Original Work (panel)** *Pendleton East 339*

Lotte Schlegel, Hilary Sivitz, and Brenna Vredevel, "Perceptions of Nature"

**The Hellion in Seat A (paper session)** *Science Center 396*

Erin Klein, "The Role of Class in Understanding Public Perceptions of School Violence"  
 Kathryn Smith, "Preschool Children's Understanding of Misbehavior and Its Consequences"  
 Sara Newland, "Juvenile Justice and the Rise of Disciplinary Power"

**The Arts****Two Twentieth-Century Masterpieces (performance)** *Jewett Auditorium*

Laura Hahn, Allison Kao, Arielle Galambos, Kari Gjerdingen, Anna Nousek, Joanna Swafford, and Deborah Hayden, "Two Twentieth-Century Masterpieces"

10:40 – 11:00 Break

*Continental breakfast served in Jewett Lobby, Pendleton Atrium, and Science Center Lounge.*

11:00 – 12:10

**Economic Issues****Economic Tests of Value (paper session)** *Pendleton East 339*

Sara Graziano, "Evolution of Conventions in a Public Goods Game with Private and Public Knowledge of Advice"  
 Sara Parker, "Socially Responsible Economics"  
 Estelle Robichaux, "What Is Coral Really Worth?: Valuing Marine Protected Areas"

**Gender and Sexuality****Gender, Self-Esteem, and Adolescence (paper session)** *Science Center 264*

Julia Felton, "Drowning the Little Mermaid: Relationships and Female Depression"  
 Katherine Collins, "Memories of Adolescence and Self-Esteem"  
 Larissa Blustein and Rose Sebastian, "Gender Schemas and Play Behaviors of Four- and Five-Year-Old Boys"

- Multicultural Research**      **From the Ridiculous to the Sublime: Images and Stereotypes (paper session)** *Pendleton West 212*  
 Shirley Hsu, "A Response to the Ridiculous"  
 Jessica Berlow, "From Sushi to Sanshin: What is a 'Japanese'?"  
 Catherine Cachero, "Paradise: A Visual Tourist Destination"
- Political Development and Conflict**      **Danger and Conflict (paper session)** *Science Center 396*  
 Julia Meconiates, "Terrorism in a Democratic State: The Case of ETA in Spain"  
 Sushama Amrita Saijwani, "Partition in India and Palestine: A British Legacy of Conflict"  
 Erin R. Ford, "National Missile Defense and the Bush Administration's Iraqi Strategy"  
 Sara Benitez, "The Limits of Liberal Democracy: The Case of Indigenous Groups in Mexico"
- Science and Technology**      **Measuring and Modeling the Physical World (paper session)** *Pendleton East 139*  
 Stella Offner, "3-D Modeling of Electrorheological Suspensions in a Shear-Flow"  
 Francesca D'Arcangelo and Ama Baafra Abeberese, "Laser Cooling and Trapping of Rubidium Atoms"  
 Alexis K. Ault, "Basaltic Lava Flows and Conglomerates at Worlds End Reservation, Hingham, Massachusetts: Neoproterozoic Volcanism in the Southeastern New England Avalon Zone"  
 Karen A. Hutchison, "Moving and Counting: Controlling a Spectrometer with LabView"  
**A Digital Gallery of the Stars (panel)** *Pendleton East 239*  
 Emily Bowsher, Wendy Hawley, Sarah Kohler, Julia Levine, Alyssa Meyer, Christine Simpson, Marlena Whiting, and Lesley Yen, "A Million Pixels on the Sky"  
**Synthesis of Thiopeptides (panel)** *Science Center 256*  
 Samantha J. Friedman, Shyla N. Gowda, Akiva Kahn, Katherine E. Lee, Erzszi Szilagyi, and Laure-Anne Ventouras, "Synthesis of Thiopeptides"
- Self and Identity**      **Influences on Performance and Sense of Self (paper session)** *Science Center 278*  
 Rashna Mehta and Tara Chiatovich, "Creativity, Reward, and Distraction: Preschoolers' Memory of Task and Environment"  
 Tara Chiatovich, "What Makes a Good Friend?: Preschoolers' Popularity and Social Skills as Predictors of Friendship Quality"  
 Rachel Millstein, "Go Out and Play: An Examination of the Effects of Exercise on the Well-Being of Wellesley Students"  
 Meghan Shaughnessy, "High School Experiences and Academic Self-Concepts of Wellesley College First-Years"
- Social Institutions and Processes**      **Kingdom of the Gods? (paper session)** *Pendleton West 116*  
 Bettina Raquel Scholz, "Redefining Rationality: Religious Arguments in Public Deliberation"  
 Lisa M. Priest, "Who Do You Say That I Am?: A Search for Orthodoxy in *The New Century Hymnal*"  
 Kathryn Harvey, "Prayerful Politicking: The U.S. Catholic Bishops' Influence on American Public Policy"  
 Rachel Isaacs, "Piety and Polity: Judaism and Political Participation in the Greco-Roman Diaspora"



## The Arts

### Two Documentaries (exhibition/film) *Collins Cinema*

Jennifer Redfearn and Tuyet Catrina Huynh, "El Milagro Verde"

Tuyet Catrina Huynh, "Running to the Sky"

### Image + Text (exhibition/panel) *Jewett 372*

Ella Coscolluela, Sarah Ligon, Molly Earle, and Kate Erickson, "Image + Text"

### The Human Figure: Form and Feeling (exhibition) *Jewett Gallery*

Joanne Ng, "Expressions in the Abstracted Figure"

### Making History: Creating Henry Purcell's *Dido and Aeneas* at Wellesley College

(interactive/performance) *Jewett Auditorium*

Brooke Bryant, "Making History: Creating Henry Purcell's *Dido and Aeneas* at Wellesley College"

Performers: Cecilia Lam, Evangeline Rich, Jennifer Yum, Alexandra Dilley, Stephanie

Kacoyanis, Ariel Applebaum-Bauch, Christiana Molldrem, Leslie Oesterich, Elise Passamani,

and Emily Carrigan

12:10 – 1:30 Lunch

*All members of the Wellesley College community are invited to have lunch in the Academic Quad.  
(In the event of rain, lunch will be served in the residence halls.)*

1:30 – 2:40

## About Wellesley

### The Power and the Glory?: Serving on College Government Cabinet (panel) *Science Center 278*

Rachel M. Hezel, Nicole M. Deterding, Sunita S. Palekar, Carla J. Weiss, Dow-Jane Chi, Cara West,

Heather Long, and Sarah Kelly, "The Power and the Glory?: Serving on College Government

Cabinet"

## Change

### Global Feminism?: Women on the Web (panel) *Founders 120*

Susan Elliott, Victoria Raines, Kristen Ruff, and Leslie Hale Warner, "Global Feminism?: Women on the Web"

### The World Scene (paper session) *Science Center 256*

Oni Lusk-Stover, "The Impact of the Open Circle Program: The Value of Social Skills in a Changing World"

Marret Arfsten, "Democracy in the European Union?"

Bani Bedi, "Nuclear Weapons in the Developing World"

## Economic Issues

### International Economics (paper session) *Pendleton East 139*

Ioana Maria Petrescu, "Who Pays the Corporate Tax in an Open Economy?"

Charlene Wang, "Maid for Development: Transnational Filipina Domestic Servants and Philippine State Development Policies"

Zlata Hajro, "The Impact of IMF Concessionary Programs on Poverty"

Liz Mandeville, "What Is a 'Worker'?: Defining 'Worker' Through International Labor Law"

**Gender and Sexuality****U.S. Women's Lives: Collective Memory and Biography (panel)** *Science Center 264*

Rebecca Ellis, Eleanor Koh, Emily Oldshue, and Christine Shin, "First Person Plural: U.S. Women in the Twentieth Century"

**Science and Technology****Quantum Artistics (exhibition)** *Jewett 372*

Chizoba Nnaemeka, "Quantum Artistics"

**Tied up in Knots (interactive/exhibition)** *Jewett Sculpture Court*

Elizabeth Bellenot, Megan Heenehan, Charlotte Henderson, Ivana Kalea, Cecilia Lam, and Erin Sullivan, "Interactive Exhibits in Knot Theory"

**Fun with Mathematics (exhibition)** *Jewett Sculpture Court*

Kristine Amari, Bonnie Archampong, Frances Liu, Risa Picazo, and Erin Sullivan, "Arranging Blind Dates and Directing Traffic: An Interactive Hands-on Exhibit in Mathematics"

**Four-Dimensional Art (exhibition)** *Jewett Sculpture Court*

Zi Dong Fan, Elizabeth Pontius, Elizabeth Sproat, Jessica Thorn, and Jennifer Weaver, "Four-Dimensional Art"

**Factors Affecting Organelle Movement in *Arabidopsis thaliana* (panel)** *Pendleton East 239*

Saroj Fleming, Brita Jessen, Joy Delamaide, and DeeDee Chen, "Factors Affecting Organelle Movement in *Arabidopsis thaliana*"

**LogoChip Projects: An Exhibition of Electronic Inventions (exhibition)** *Science Center 392*

Nozomi Nakayama, Melissa Rice, Emily Bowsher, Carly Satsuma, Sarah Qidwai, Xan S. Chacko, and Paulina Ponce de Leon Barido, "LogoChip Projects: An Exhibition of Electronic Inventions"

**Self and Identity****The Individual in Context (paper session)** *Pendleton West 116*

Grace B. Kwak, "Personality and Social Support in Dating Relationships"  
Megan Bird, "The Best Listener"

**Social Institutions and Processes****Are Our Schools Created Equal? (paper session)** *Pendleton East 339*

Sarah Garrett, "Teacher Quality and Alternative Certification: A Study of *Teach for America* and Its Impact on Our Nation's Schools"  
Guinevere Higgins and Suzanne Z. Slezak, "Alternative Education: Integrating Farming into Secondary School Curricula"

**Environmental Policy: Determinants and Effects****of Environmentalism (paper session)** *Pendleton West 212*

Min Kyung (Cathi) Kim, "Accounting for Hazardous Waste Trade in Developing Countries: An Analysis of West African Countries and Their Participation in the Obsolete Pesticide Trade"  
Jessica S. Bernfeld, "From Ancient Customs to Modern Conservation: An Analysis of the Environmental Friendliness of Tribal Fishing Laws"  
Sarah Schoenbach, "First World Messes Moved to the Third?: Environmental Degradation in South America"  
Abigail Tinker, "Think Globally about Consumption Locally"

**Health and Social Policy (paper session)** *Science Center 396*

Laura M. Flahive, "Equity and Policy: Factors Affecting State Health Access"  
Sara Mrsny, "Can Offers Be Coercive?"  
Colbie Paulson, "*Roe v. Wade*: From Revolution to Resolution"

**The Arts****Brighton Beach, Moscow, and All Points Between (performance)** *Jewett Auditorium*

Heather Boas, Andrea Kennedy, Cat Larrison, Sara Simons, Kate Stebinger, and Danielle Young,  
“Brighton Beach, Moscow, and All Points Between”

**From Schubert to Strauss: A Concert of Nineteenth-Century****German Lieder (performance)** *Pendleton West 220*

Erica Meltzer and Fay Galbavy, “From Schubert to Strauss: A Concert of (Mostly) Nineteenth-Century  
German Lieder”

**Multiplicity in Mixed Media (exhibition)** *Jewett Lobby*

Marjorie Frankel, Wileen Kao, Leah Solk, and Selena Tang, “Multiplicity in Mixed Media”

2:40 – 3:00 Break

Refreshments served in Jewett Lobby, Pendleton Atrium, and Science Center Lounge.

3:00 – 4:10

**About Wellesley****FirstClass Community vs. Wellesley Community: What’s the Difference? (panel)** *Science Center 278*

Nicole Deterding, “Actual Reality: A Virtual Voyage into Wellesley Community”  
Katherine Fraga, “Uptown Girls Go Downtown: A Study of a Wellesley College Residence Hall”

**Analysis of Literature  
and the Arts****Literature and Life (paper session)** *Jewett 450*

Alexis Guild, “The Politics of Poetry: The Work of Pablo Neruda”  
Kamala Nair, “Sylvia Plath: Power and the Poetic Voice”  
Allison Newman, “E.M. Forster’s Nature: An Evolution Outside of Social Class”  
Honor Costello, “The Style of Late Henry James: The Process of Vision in *The Ambassadors*”

**Economic Issues****Economic Analyses of American Policies (paper session)** *Pendleton East 139*

Andrea Bell, “Are Professional Basketball Players Overpaid?”  
Amy Brown, “How the West Has Won: Regional and Industrial Inversion in U.S. Patent Activity”  
Karyn Long, “Should We Tax Internet Sales?: A Cutting Edge Issue for Public Policy-Makers”

**Gender and Sexuality****On the Edge: The Consequences of Latina Female Independence (paper session)** *Science Center 264*

Alison D. Carberry, “Forward Thinking and the Fear of Feminism: The Resisted Evolution of Women  
in Spain”  
Sarita Frattaroli, “Death and Gender: The Disappeared Women of Juarez – A Study of Cultural and  
Political Responses”  
Alina S. Ball, “Reproduction: A Right of the Wealthy”

**Science and Technology****From Molecules to Cells: Lab Research at Wellesley (poster session)** *Jewett Lobby*Nozomi Nakayama, "The Radiation Chemistry of  $\text{CF}_2\text{Cl}_2$ : Implications for the Ozone Hole?"

Hong-Ru Chen, "Preparation of a Nicotinamide Nucleoside Analog via Enzymatic Ribosidation of 1,2,4-triazole"

Elizabeth L.N. Okasako, "Saturated Hydrogen Bonded Co-crystals"

Katy Silverstein, "Preparation and Characterization of New Drugs against Tuberculosis: An Old Enemy"

Elizabeth Bartley, "Effects of a Continuous Dose of Beta-Adrenergic Agents on Cardiac Myocytes *in vivo*"

Paula Freedman, "Annulating Agents for Construction of Bicyclic 1,2,4-triazole Systems"

Lauren A. Cadish, "Special Agents: The Theory and Synthesis of an Enzymatically Activated, Caged Gadolinium Contrast Agent"

Sara Baldauf-Wagner, "Slow Down, You Move Too Fast: An Analysis of Whale-Watch Vessel Speed within Stellwagen Bank National Marine Sanctuary"

**Reflections on Science (paper session)** *Pendleton East 239*

Merritt McLean Evans, "'A Beardless Set of Nonblushers': Nineteenth-Century Women Physicians"

Veera Pollard, "Geek Culture: The Making of a Female Computer Scientist"

**Probing Brain Structures and Functions (panel)** *Pendleton West 116*

JaeYoung You, Brittany Yerby, Yolanda Huang, Rebecca Yang, and Lauren Brownlee, "Probing Brain Structures and Functions"

**Self and Identity****Art, Self, and Society (paper session)** *Pendleton East 339*

Ariana Hellerman, "'Getting Up': Graffiti and Hip Hop Culture as Social Expression"

Sonya Lai, "What Color Is Your Personality: A Study of Individual Differences in Aesthetic Orientation"

Hannah Richardson, "Leni Riefenstahl, Artist or Propagandist"

Lillian Fish, "Trinity Church"

**Social Institutions and Processes****This Is Not Judge Judy (panel)** *Founders120*

Amber Gorman, Meryl Rosen, Marissa Mounds, Erin Richardson, and Fatima Mahmud, "Law on the Books and Law in Action: Case Studies of Real World Legal Disputes"

**Women and Political Issues (paper session)** *Pendleton West 212*

Sarah A. Treul, "Women Who Ran in 2002: Does the Media Continue to Frame Female Candidates Differently?"

Arielle V. Simon, "From the Legislature to the Courts: The Evolution of Abortion Reform in the United States"

Susan McGregor Harvey, "The Struggle over Desegregation of the Public Schools in Prince Edward County, Virginia: The Untold Stories of Women's Contributions"

**The Arts****Photo Class Arts 308 (exhibition)** *Jewett Gallery 372*

Bethany Cooper, Sarah Dodwell, Kate Erickson, Erin Herzeelle, Laurel Martin-Harris, Miranda Paris, Julie Raymond, Keren Rosenfeld, Clare Seabright, Jennifer Starkey, and Sarah Stone, "4 x 5 x 11"

**Exploration of Works for Two Pianos (performance)** *Jewett Auditorium*

Monica Link and Lydia Lee, "Music for Two Pianos"

**Original Electronic Music (performance)** *Davis Museum*

Jennifer Carlile, "Retrograde Symmetry? Metric Modulation? I-Ching?: Original Electronic Music"



4:10 – 4:30 Break

Refreshments and hors d'oeuvres served in Jewett Lobby, Pendleton Atrium, and Science Center Lounge.

4:30 – 5:40

**Analysis of Literature and the Arts**

**Icons of Contemporary Culture (paper session) Jewett 372**

Maeve Cunningham, “‘Tangled Up in You’: A Trip through the Love Songs of the Poet Bob Dylan”  
 Marissa A. Tinsley, “Food in Literature – Food as a Vehicle for Expressing Intimacy and Nostalgia”  
 Anne Mostue, “The Short Fiction of Raymond Carver”

**Music, Literature, and Fashion (paper session) Pendleton East 339**

Deborah Hayden, “Romain Rolland, George Sand, and the Apprenticeship of the Itinerant Musician: Music as a Pedagogic Entity in the French Formation Novel”  
 Meryl Rosen, “Woman, Writer, Critic: Jane Austen’s Authorship and Late Eighteenth-Century English Society”  
 Kat V. Scoggin, “A Mirror in the Wardrobe”

**Change**

**Images of Globalization: Original Research Projects from Sociology 321 (panel) Pendleton West 212**

Students from Sociology 321, “Images of Globalization: Original Research Projects from Sociology 321”

**Multicultural Research**

**Facing History: Slavery and Internment in the United States (paper session) Science Center 264**

Marianne Lopriore, “Music, Art, and Memory: The Japanese American Internment”  
 Leslie Hale Warner, “An Unpaid Debt for Slavery?: The Reparations Debate in the United States 1865-2002”

**Science and Technology**

**Studies at the Micro Level (paper session) Pendleton East 139**

Caitlin Conboy, “Genetics and the Fountain of Youth: A Look at the Molecular Regulation of Aging”  
 Elizabeth A. Masiello, “The Changing Face of Surveillance: Biometrics and the Right to Privacy”  
 Amanda Gardner, “Spectroscopy of Cr-acetylacetonate Complexes in Sol-Gel Glasses”  
 Christine Worrall, “Adding Substituents to the C-3 Position of 4-Substituted 1,2,4-triazoles”

**Interdisciplinary Research Group Studying Adaptation in Bacteria (panel) Pendleton East 239**

Levita Robinson, Brenda Kwambana, and Tina Wang, “Characteristics of Heavy Metal Resistant Bacteria Isolated from the Former Henry Woods Paint Factory Site in Wellesley, Massachusetts”  
 Jing Chen and Katherine M. Shea, “Acid Shock in the Cyanobacterium *Synechocystis* sp. Strain PCC 6803 and Comparisons of Exponential and Stationary Phase Cultures”  
 Deborah Bauer and Melissa Davis, “Cyanophycin and Nitrogen Metabolism in the Cyanobacterium *Synechocystis* sp. Strain PCC 6308”  
 Corinne Savides, Tam-Linh Nguyen, and Sarah Van Driesche, “Designing an Experiment to Measure Phycocyanin Levels in Cyanobacteria during Nitrogen Starvation”

**Lobsters, Crabs, and Killer Whales (paper session) Science Center 256**

Anna Nousek, “Vocalizations of Killer Whales”  
 Erin Flannery, “Northward Invasion: Population Studies of the Nonindigenous Shore Crab *Hemigrapsus sanguineus* in Nahant, Massachusetts”  
 Erin Savner, “Transient Serotonin Synthesis and Lifelong Neurogenesis in the Lobster Olfactory Pathway”



**Self and Identity**

**All in the Family: Four Memoirs – Readings of Original Work (panel)** *Pendleton West 116*  
 Danielle Durchslag, Maggie DeVries, Elizabeth Edmonson, and Lisa Priest, “All in the Family: Four Memoirs”

**The Arts**

**Bangles and Bhangra: Bringing the Beat (performance)** *Jewett Auditorium*  
 Simran Thadani, Nida Mirza, Vandana C. Reddy, Sashikala Nimalendran, Aishwarya Lakshmi Ratan, Faatin A. Chaudhury, Ayesha S. Sattar, Nandita Ahmed, Xan S. Chacko, Meera Mohan, Seema M. Rathod, Leah K. Solk, Devyani Parameshwar, Kathleen Chan, and Elizabeth Tharakan, “Bangles and Bhangra: Bringing the Beat”

**Glorification and Humanization of Mary in Music and Literature (panel/performance)** *Pendleton West 220*

Brooke Bryant, Cecilia Lam, and Maureen McMahon, “Exploring Historical Representations of the Virgin Mary through the Arts”



### Conference Planner

Time	Presentation 1	Presentation 2	Presentation 3	Presentation 4
9:30 – 10:40	Topic:	Topic:	Topic:	Topic:
	Presenter(s):	Presenter(s):	Presenter(s):	Presenter(s):
	Location:	Location:	Location:	Location:
10:40 – 11:00	B R E A K			
11:00 – 12:10	Topic:	Topic:	Topic:	Topic:
	Presenter(s):	Presenter(s):	Presenter(s):	Presenter(s):
	Location:	Location:	Location:	Location:
12:10 – 1:30	L U N C H			
1:30 – 2:40	Topic:	Topic:	Topic:	Topic:
	Presenter(s):	Presenter(s):	Presenter(s):	Presenter(s):
	Location:	Location:	Location:	Location:
2:40 – 3:00	B R E A K			
3:00 – 4:10	Topic:	Topic:	Topic:	Topic:
	Presenter(s):	Presenter(s):	Presenter(s):	Presenter(s):
	Location:	Location:	Location:	Location:
4:10 – 4:30	B R E A K			
4:30 – 5:40	Topic:	Topic:	Topic:	Topic:
	Presenter(s):	Presenter(s):	Presenter(s):	Presenter(s):
	Location:	Location:	Location:	Location:



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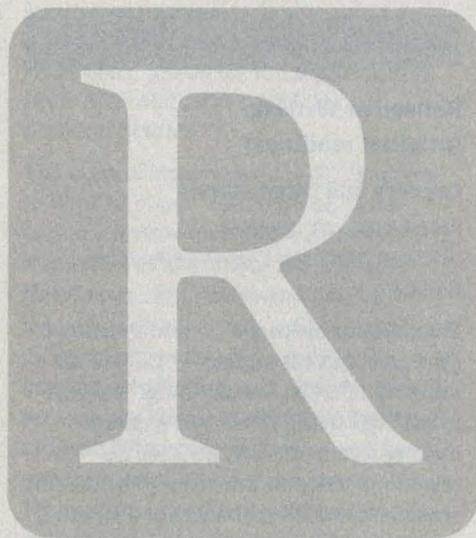
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## Abstracts

9:30 -10:40

**About Wellesley****An Assessment of Greenhouse Gas Emissions of Wellesley College (panel)****It Ain't Easy Being Green: An Audit of Wellesley College's Greenhouse Gas Emissions**

Sara Baldauf-Wagner '03, *Environmental Studies*, Kristen Blanton '04, *Environmental Studies*, Nicole Duarte '03, *Environmental Studies*, Julia Dwojeski '03, *Environmental Studies*, Tuyet Catrina Huynh '03, *Environmental Studies*, Amy Leitch '03, *Environmental Studies*, Rebecca Owens '03, *Environmental Studies*, Sarah Schoenbach '03, *Environmental Studies*, Sally Spaulding '03, *Environmental Studies*, Abigail Tinker '04, *Environmental Studies*, and Juliette White '04, *Environmental Studies*  
 ADVISOR: Elizabeth DeSombre, *Political Science*

How much do you contribute to global climate change? Environmental Studies 300 devoted a semester to uncovering the truth regarding how much greenhouse gas the Wellesley College community adds to the atmosphere annually. All our emissions occur in three main sectors: transportation, energy usage, and waste disposal. By investigating how much gas is emitted by the cars we drive, the electricity we use, and the trash we throw away, Environmental Studies 300 determined the annual atmospheric greenhouse gas contribution of our campus community. Further analysis of this campus-wide data revealed, over the last decade, certain trends that support recommendations we will offer the community regarding how to reduce emissions. Environmental Studies 300 completed extensive original research into this topic in the interest of presenting Wellesley College with an accurate and comprehensive assessment of its environmental impact, something to which we all contribute.

**Analysis of Literature and the Arts****Reflective Writing (original readings)****Laundry and Other Stories**

Seemi Syed '03, *English*  
 ADVISOR: Margaret Cezair-Thompson, *English*

The narrator in Joseph Conrad's *Heart of Darkness* asks his audience "Do you see the story? Do you see anything? It seems to me I am trying to tell you a dream—making a vain attempt, because no relation of a dream can convey the dream-sensation, that commingling of absurdity, surprise, and bewilderment in a tremor of struggling revolt, that notion of being captured by the incredible which is of the very essence of dreams. . . ." This collection of short stories attempts to convey a sense of what coheres and separates families. At its center lies the relationship between two brothers raised in turn-of-the-century India and their eventual passage away from home. At a deeper level, the stories will address concepts of social stratification, loyalty, acceptance, and reconciliation.

**Ave Atque Vale: Echoes of Grasp and Release**

Giffen Maupin '04, *English and Latin*  
 ADVISOR: Alison Hickey, *English*

The title of this presentation reflects the final line of Catullus's 101st poem, which one can translate as "hail and farewell." In the spirit of the poet's words, this collection of original writing, including samples of poetry, fiction, and memoir, focuses on the central dichotomy of holding on and letting go and resembles a classical drama in the diversity of its voices and emotions. These pieces challenge the listener to consider several questions. Can one remember without forgetting, love without a painful awareness of imminent goodbyes, resolve to move on without confronting the ghosts of memory? Are holding on and letting go, in fact, one and the same process? The author of this

compilation strives to explore rather than answer these vital and intricate questions.

**Translating the World (paper session)****Translation of Various Classical Japanese Texts into English**

Clara Chi '03, *Japanese and English*  
 ADVISOR: Carolyn Morley, *Japanese*

Classical Japanese differs from modern Japanese in many ways in terms of grammar and vocabulary. In addition, the age that the work was written in creates differences within classical Japanese itself. For my research I have attempted to translate a variety of selected short pieces from famous texts such as the Manyōshū, Kokinshū, and Sei Shōnagon's *The Pillowbook*. The appreciation of nature in regard to human emotion and the observation of everyday life in relation to self are some of the themes that these selected texts focus on. Although certain translations have already been published, it is interesting to note the differences between two published translations of the same text. Various challenges, such as the preservation of style and communication of emotion, will also be presented.

**Chaucer for Children: The Canterbury Tales Meet Disney**

Heather Long '04, *English and Economics*  
 ADVISOR: Kathryn Lynch, *English*

Is it really possible to portray the Wife of Bath in a coloring book? Can Disney do justice to the Nun's Priest's Tale? This presentation explores a small, but lively group of children's texts and films based on Geoffrey Chaucer's *Canterbury Tales*.

Highlights include an Emmy award winning animation, a 1959 Caldecott Medal winning adaptation of "Chanticleer and the Fox," and a little known version by Wellesley's own Katharine Lee Bates (published in 1909 and housed in our Special Collections). Through film clips and slides of illustrated texts, I will examine the process of translating Chaucer's lewd and dynamic characters

for a young and modern audience. How do the authors and illustrators deviate from Chaucer's original text? And most importantly, do the modern storytellers stay true to the spirit of the *Canterbury Tales*?

### Study in Translation and Culture: The Short Works of Leila Sebbar

Tamara Mendelsohn '03, *Comparative Literature*

ADVISOR: James Petterson, *French*

During the years surrounding Algeria's independence from France in 1962, many Algerians and their families immigrated to France in search of a better and more prosperous life. The children of these families were faced with the challenge of understanding and integrating themselves into the new culture, one which often came into conflict with the strong moral and religious beliefs of their parents. Struggling to define their identity, these children were forced to create their own space, and at the crossroads of the two cultures a new genre of francophone literature emerged, known as Beur literature. I have translated two short stories by Leila Sebbar, a Beur author, who is able to capture the essence of this turbulent time in her works. In translating these short stories, I experimented with a number of techniques as I was faced with the difficulty of not only translating words, but cultural worlds. (Research supported by Student Research Grant)

### Change

### Papyrus to Print to Pixel: An Odyssey through the History of Written Communication (interactive)

#### Papyrus to Print to Pixel: An Odyssey through the History of Written Communication

Julia Collins '05, Jamie A. Eidsath '03, *English*, Katie Grenzeback '03, *Art History*, YingYing Hou '03, *Computer Science and Economics*, Dawn Kim '04, *Chemistry*, Bethany Templeton '05, *Jennifer Langer '03, Computer Science and Classical Civilization*, Amanda Severin '03, *American Studies and Classical*

*Civilization*, Jennifer Starkey '04, *Studio Art*, Erin Stadler '03, *Media Arts and Sciences*, and Sara Simons '03, *Theatre Studies and Women's Studies*

ADVISOR: Ruth R. Rogers, *Special Collections*, Katherine McCannless Ruffin, *Book Arts*, and Raymond J. Starr, *Classical Studies*

The class of Experimental 240, "Papyrus to Print to Pixel," spent this semester taking a unique look at the history of written communication. Starting with Babylonian clay tablets and moving through papyrus scrolls, codices, medieval manuscripts, early printing methods, mechanical printing, and now the digital present, the class examined the evolution of these different technologies and the many connections between them. Through an interactive combination of working with the original material culture, group discussions, and re-creating the original processes and products in a lab setting, as well as learning from numerous expert lecturers, we received a truly multifaceted, hands-on education of this medium. This medium, often taken for granted, is probably the most influential achievement of western society. Our presentation will share with the Wellesley community the exciting experience that we have had and hope that others will gain from it as well.

### Gender and Sexuality

### Sexuality, Gender, and the Law (panel)

#### The Changing Law, the New Family, and the State

Lauren Siemsen-Newman '03, *Psychology*, Erin E. Richardson '03, *English*, Ariel S. Greenblum '03, *International Relations*, and Lynda Pinheiro-Pires '03, *Political Science*

ADVISOR: Jo Ann Citron, *Women's Studies*

Fewer than 25% of American households reflect the heterosexual, two-parent family of mainstream ideology. Heather might have two mommies, or three, or one, or none. How do courts imagine parenthood when alternative reproductive technologies allow 16 adults to compete for the

title? Can a birth certificate list two mothers? Who gets the kids when two lesbians break up? Is a sperm donor the same as an unwed father? If you're not the legal parent, must you pay child support? Can you claim head-of-household status on a federal income tax return? Do you have to be the sex that your birth certificate says you are? We know the answers. Come and find out.

### Multicultural Research

### Aspects of Antisemitism (panel)

#### Aspects of Antisemitism

Lacey A. Feldman '03, *Neuroscience*, Rebecca A. Goldenberg '04, *Psychology*, Susan McGregor Harvey DS '03, *History*, Rachel Isaacs '05, *Jessica LeRoy '03, Economics and German Studies*, Keren A. Rosenfeld '03, *International Relations and Studio Art*, Lauren M. Ullman '04, *History*, Karen E. Wabeke '04, *History*, and Jessica S. Bernfeld '04, *Political Science*

ADVISOR: Frances Malino, *Jewish Studies*

In this presentation, students discuss aspects of antisemitism- past, present, and future. Feldman presents the extent of antisemitism in the New York workforce during the 1940s through the academy award winning motion picture "Gentlemen's Agreement" produced by Darryl F. Zanuck. Goldenberg examines Wellesley College's Christian roots and outlines the views held toward Jewish students. Harvey focuses on antisemitic representations of the Dreyfus affair by impressionists such as Degas and Lautrec. Isaacs will look at antisemitism within the nationwide divestment from Israel movement at colleges and universities. Through an analysis of the German press coverage surrounding the 2001 Conference on Racism in Durban, LeRoy examines the German media's treatment of the Israel/Palestine conflict. Rosenfeld looks at the historical bias against Israel by the UN. Ullman analyzes the biases that the BBC shows in its news articles, and determines whether or not these biases reflect an underlying antisemitism. Bernfeld examines the treatment of the Holocaust

and creation of the state of Israel in high school and college history texts. Finally, Wabeke looks at antisemitism and Anglicanism as it took shape historically and is playing out in the present day Israel/Palestine conflict.

## Political Development and Conflict

### Foreign Policy (paper session)

#### Allied but Not Aligned: France and American Foreign Policy

*Morgan Courtney '03, International Relations and French*

ADVISOR: Venita Datta, French

Franco-American relations have become tenuous of late, largely as a result of recent American foreign policy decisions. The Kyoto Protocol, the events of September 11, 2001, followed by American intervention in Afghanistan, and the current Iraqi conflict have all led to heightened tensions between the two allies. Whereas the American abrogation of the Kyoto Protocol sparked dissent among the French, the events of 9/11 inspired unexpected French support for the United States. This support, however, was largely illusory since the French government supported military action in Afghanistan in spite of public opposition. More recently, with regard to the Iraqi conflict, France has become one of the most vocal critics of the United States. Through an examination of American policies and corresponding French reactions, I intend to illustrate that differences in the foreign policies of these two nations can be attributed to the differences in their respective values.

#### Alliance or Institution? The Future of NATO

*Meghan M. Knake-Timko '03, International Relations*

ADVISOR: Robert Paarlberg, Political Science

Recent world events have led to what many are calling the worst crisis in NATO's history. While many fear that the past couple of months' occurrences are suddenly throwing NATO into a fateful turmoil, others anticipated such change in the alliance since the end of the cold war. While realists, institutionalists, and democratic peace theorists presented very different predictions for NATO after the collapse of the Soviet Union, all of them anticipate the end of the alliance as it has been known for the past fifty years. As NATO takes on new roles and struggles with modern security challenges, its actions can be compared to different theoretical predictions to test the theories, and also to clarify the likely evolution of NATO in upcoming years. Depending on whether NATO is following realist, institutionalist, or democratic peace theoretical trends, it can be determined whether the alliance is truly in the terminal crisis that many now fear.

#### Toward a New Foreign Policy for Africa: Democratic Expansion or Empty Rhetoric?

*Colleen Murphy '03, Political Science and Comparative Literature*

ADVISOR: Robert Paarlberg, Political Science

The collapse of the Soviet Union and the end of the cold war presented new possibilities for American foreign policy. No longer faced with a near-term threat, the United States was free to promote the spread of democratic institutions, a consistent theme in American foreign policy that has been repeatedly pushed aside in favor of national security concerns. My thesis evaluates American cold war and post-cold war activities in Africa south of the Sahara, a region with which the United States has few historic ties or economic interests, and where most governments are not yet democratic. Using original measures of U.S. political, economic, and military activity and intervention, I determine if American support for democracy

in Africa has increased since the end of the cold war, or if the United States' involvement in the region has been limited to other activities, such as humanitarian relief, crisis response, or issues of national security.

#### Democratic Challenges in Latin America: From International Interests to Internal Power Politics

*Sudha Krishnan '03, International Relations and Spanish*

ADVISOR: Craig N. Murphy, Political Science

The past involvement of international forces in the creation of democratic institutions has produced a weakened political structure in Latin America's most dominant countries: Chile, Argentina, Brazil, and Mexico. My research focuses on the impact of international influences on the enduring economic, social, and political difficulties in these Latin American democracies. An increasingly powerful transnational upper class, with strong links to the U.S., supported civilian-military regimes across the region, believing this was the most effective way to maintain an international order partial to American interests. The diminished influence of political parties combined with the lingering effects of military rule, inequality, and international interest groups have resulted in a loss of state control – casting doubt on the extent of successful democratic consolidation. International forces that deter democracy deny the underprivileged the opportunity to control their destiny, thus, the strength of democracy in Latin America is vital given that political participation is central to human development.

## Science and Technology

### Proteomics: A New Approach to Systems Biology and Disease Treatment (panel)

#### Proteomics: A New Approach to Systems Biology and Disease Treatment

Hong-Ru Chen '03, *Biological Chemistry*, Caitlin Conboy '03, *Biological Chemistry*, Estelle Lin '03, *Biological Chemistry*, Felice Lin '03, *Biological Chemistry*, Andrea Nichols '04, *Biological Chemistry*, Zoe Rosenbaum '04, *Biological Chemistry and Jewish Studies*, Beza Seyoum '03, *Biological Chemistry*, and Stacey Wirt '03, *Biological Science*

ADVISOR: Gary Harris, *Biological Sciences*

Proteomics is an emerging field in molecular biology which aims to catalog and model global protein expression and function in organisms ranging in complexity from bacteria to humans. Our presentation will address the tools being used to pursue this goal, the limits of current technologies and the promise of proteomics on the frontier of disease research.

Following the pattern of genomics, proteomics research has frequently been geared towards high-throughput analysis of the total protein content of tissues, organelles, and organisms in order to develop a systems-level understanding of biological function. This research has relied on tools such as two-dimensional gel electrophoresis, mass spectrometry, and affinity and array-based techniques. In conjunction with bioinformatics, searchable protein databases of protein interaction networks and sequence alignment comparisons have been generated. We will discuss how proteomic analysis has been utilized in current biomedical research including research on breast cancer and tuberculosis, providing potential for improved diagnostic and treatment tools.

## Self and Identity

### Questions of Philosophy (paper session)

#### That Does It!: An Aristotelian Analysis of the "Last Straw" Reaction

Monica Link '03, *Philosophy*  
ADVISOR: Maud Chaplin, *Philosophy*

Have you ever been containing your anger the whole day until something mildly annoying just makes you snap? Aristotle's thoughts on anger and incontinence (when someone acts against what reason says is right) can explain "the last straw" reaction – where someone overreacts to a seemingly small offense. According to Aristotle, it is impossible to talk about anger without talking about the pain of being intentionally slighted and the pleasure of revenge. I will give examples of when a person might be angry without the desire or the opportunity for revenge; in such cases anger could build up and lead to something like "the last straw." In discussing when, why, and on what objects people seek revenge, I will also consider Aristotle's thoughts on when a person should calm herself or himself even if there is reason to be angry.

#### George Berkeley's Idealism and the Nonexistence of Matter

Judy D. Cueva Alegría '03, *Chemistry and Philosophy*  
ADVISOR: Kenneth P. Winkler, *Philosophy*

George Berkeley's defense of idealism redefines our conception of knowledge. His trenchant analysis dismisses the existence of material substances while maintaining that only minds and their ideas exist. Material objects become collections of ideas, immediately perceived by the senses. Berkeley's predecessors maintained that material objects possess an autonomous existence revealed through their causal relations. Berkeley's main argument, "esse is percipi," states that the existence of any sensible thing depends on its being perceived. Although one may imagine objects existing without being perceived, this testifies only to the framing of ideas while simultaneously refraining from framing the idea of

someone who perceives them. Despite the strength of his arguments, Berkeley faces several problems, among them the task of demonstrating that other minds exist and can be known. Moreover, his philosophy of science, which carries with it his idealism, leads to some surprising consequences in mathematics and physics.

## Social Institutions and Processes

### Contemporary Social and Economic Issues (poster session)

#### Friedrich Nietzsche: Anti-Semite and Philosopher of the Third Reich?

Lizzie Bell '03, *Economics*  
ADVISOR: Nicolas de Warren, *Philosophy*

This semester, I explored the fascinating story of Friedrich Nietzsche and his relationship to Judaism, Germany, Hitler, and Fascism. My presentation will deal with the debate over whether or not Nietzsche was himself an anti-Semite and if his philosophy is at all responsible for the horrors of the Third Reich. I will explore the relationship between Nietzsche and his sister, Elizabeth Forster-Nietzsche, who was a friend and strong admirer of Hitler and is primarily responsible for promoting her (insane) brother's works towards Nazi usage.

#### Young Children's Understanding of Marriage Conventions

Katherine Collins '03, *Psychology and Morgan Wells '03, Psychology*  
ADVISOR: David Pillemer, *Psychology*

This poster will present the results from three studies designed to fill a void in our understanding of how young children conceptualize marriage and/or heterosexuality.

In the first study, three to four-year-old children were asked to indicate a preference for one of two potential marriage pairings: an adult female character and her female friend, or the same female character and a male friend. A dramatic age effect was observed for this vignette; 73.3% of three-year-olds selected a same-sex marriage pairing, whereas 81.3% of four-year-old participants preferred an opposite-sex marriage pairing.

The second and third studies replicated the main finding from study 1 and also investigated relationships between children's cognitive understanding of gender and their preferences for conventional versus unconventional marriage pairings. Again, older children were more likely than their younger peers to choose heterosexual marriage pairings. Potential explanations for the observed age effects will be discussed.

### **Gender and Ethnic Stereotypes: Barriers to Success Faced by Minority Women**

*Rachel Cheng '03, Psychology and Chinese Studies*

ADVISOR: *Linda Carli, Psychology*

According to projections by the Bureau of Labor Statistics, the 2010 growth rate of African-American, Asian, and Hispanic women in the workforce will continue to increase faster than the rate of Caucasian and non-Caucasian males in the workforce. Undoubtedly, women have long faced challenges in the workplace. However, the combination of gender and ethnic stereotypes poses a greater dilemma for minority career women. The existence of mixed stereotypes adds further complexity to the situation. Research shows that those who hold a low status position are perceived as being low in competence. Meanwhile, those who are seen as belonging to a competitive group are viewed as low in warmth. This poster presentation will explore research on the perceived competence and warmth of minorities, namely African-Americans, Asians, and Hispanics. In addition, I will discuss studies on how women's power to influence others is affected by their displays of competence and warmth.

### **Debunking Poverty Myths**

*Tina Wang '04, Sociology, Casey Bieberich '05, Suzanne Bonfiglio '03, Anthropology, Kristina Chan '04, Studio Art, Lyntonia Coston '03, International Relations, Sarah Garrett '03, Urban Studies, Eliza Heaton '03, Religion, Kathryn Isom '04, Nadya Jaworsky DS, Sociology and American Studies, Christina Locke DS '03, Sociology, Jennifer Longfellow '03, American Studies, Devon Mayhugh '04, Architecture, Tam-Linh Nguyen '04, Biology, Linda St. Pierre DS, Sociology, and Kirsten Wisneski '03, American Studies*

ADVISOR: *Karen McCormack, Sociology*

Are the poor lazier than the rest of us? Do taxes on the upper and middle classes primarily go to poverty programs? Is unequal pay on the basis of race and gender a thing of the past? All of these common assumptions about poverty and many more will be debunked through a series of informative fact sheets that emerged from Sociology 309: Gender, Race, and Poverty. Topics include child poverty, inequities in education, racial disparities, rates of female employment, and similar issues. The fifteen students will be on hand to answer questions about the display. The project aims to provide evidence against common assumptions about class, race, and gender inequalities. It is far easier to think of poverty myths than to respond to them intelligently; we hope to provide tools for people to do so.

### **Perceptions of Nature Readings of Original Work (panel)**

#### **Perceptions of Nature**

*Lotte Schlegel '04, Biology, Hilary Sivitz '05, Film Studies, and Brenna Vredeveld '05, Environmental Studies*  
ADVISOR: *Kenneth P. Winkler, Philosophy*

Through presentation and discussion of original pieces of nature writing, the panelists, together with the audience, will explore the role that nature plays in our lives and the power of nature writing to connect us with our surroundings. The student works were first prepared for a course in environmental philosophy in the spring of 2002.

In her piece, Brenna Vredeveld recalls a childhood walk in a southern battlefield, "returned to nature," but still showing the signs of the generations of people who had passed there. Hilary Sivitz sees nature as "an awakener of sleepers." Lotte Schlegel relives a series of sensory memories from childhood to the present. To facilitate discussion, the panelists will read brief excerpts from published writers who influenced them, as well as encouraging audience members to examine their own ideas about nature.

### **The Hellion in Seat A (paper session)**

#### **Preschool Children's Understanding of Misbehavior and Its Consequences**

*Kathryn Smith '03, Psychology and French*  
ADVISOR: *Sheila Brachfeld-Child, Psychology*

Numerous research studies have examined the influence of discipline techniques on outcomes for young children. However, very few researchers have asked children themselves about misbehavior and even fewer have done so in an ethical and nonthreatening way. Thirty-three preschool children between the ages of three and five years old were presented with three vignettes describing a fictitious child's misbehavior. Children were then asked to suggest a parental reaction. Follow-up questions probed the children's beliefs about the efficacy of the suggested reactions. The interview ended with general questions regarding the children's understanding of the words "time out" and "sorry." Gender and age differences, as well as the children's reactions to various types of misbehavior, will be presented. Implications for child-rearing techniques and directions for future research will be discussed. (Research supported by the Office of the Dean of the College)

### Juvenile Justice and the Rise of Disciplinary Power

Sara Newland '03, *Political Science*  
 ADVISOR: Roxanne Euben, *Political Science*

The creation of the first juvenile court in Chicago in 1899 confirmed the commitment of Progressive Era reformers to rehabilitative treatment of juvenile delinquency. However, the widespread assumption that rehabilitation was more humane and individualized than more punitive forms of punishment obscured the ways in which an emphasis on rehabilitation aided the rise of new – and newly pervasive – forms of power. I examine two related phenomena: first, the growth throughout the juvenile court's history of a form of power that relies on surveillance and regimentation rather than physical control, and second, the interactions of the discourse surrounding youth powerlessness with larger debates regarding gender, the relationship between the public and private spheres, and the meaning of citizenship. (Research supported by the Office of the Dean of the College)

### The Role of Class in Understanding Public Perceptions of School Violence

Erin Klein '03, *Sociology*  
 ADVISOR: Jonathan B. Imber, *Sociology*

School violence emerged on the national political agenda in the 1960s, although it was not until the early 1990s that in light of highly publicized school shootings, it became a widespread public concern. Media reports continue to characterize school violence as a catastrophic, endemic social problem growing into an untamable behemoth. But these reports seem to fly in the face of statistical trends that suggest the rates of school violence have been relatively stable since they began to be collected on a national level in the mid-1970s. Even more interesting is the fact that these same statistics suggest that school violence is not, and never was, a purely urban phenomenon, even though popular media have characterized it in this way. This discussion focuses on the social conditions that shape the public consciousness about this issue, and how it came to be such a highly visible social problem.

### The Arts

#### Two Twentieth-Century Masterpieces (performance)

##### Two Twentieth-Century Masterpieces

Laura Hahn '06, Allison Kao '06, Arielle Galambos '06, Kari Gjerdingen '03, Economics, Anna Nousek '03, *Biology and Music*, Joanna Swafford '06, and Deborah Hayden '03, *Latin and French*  
 ADVISOR: Nancy Cirillo, *Music and Isabelle Plaster, Music*

*String Quartet No. 8, op. 110*, by Dmitri Shostakovich, has been called an autobiography of the composer's works. The cello begins with the notes D, E-flat, C, and B which, translated into German, spell DSCH, Shostakovich's initials, and a common trademark of his. This theme dominates the quartet, which includes also other powerful themes from his various works. Shostakovich dedicated this quartet to the memory of those who were victims of fascism. Carl Nielsen's *Quintet for Winds, op. 43*, completed in 1922, is a classic of the wind repertoire. Nielsen himself provided a short description of the work. "The composer has here attempted to present the characteristics of the various instruments. Now they seem to interrupt one another and now they sound alone. It concludes with variations, now gay and grotesque, now elegiac and solemn, ending with the theme itself, simply and gently expressed."

11:00 – 12:10

**Economic Issues****Economic Tests of Value  
(paper session)****Evolution of Conventions in a Public Goods Game with Private and Public Knowledge of Advice***Sara Graziano '03, Economics*ADVISOR: *Ananish Chaudhuri, Economics*

Private provision of public goods has been the focus of much research in economics, because public goods, such as national defense or local schools or parks, are non-excludable and therefore generate incentives for free riding. We adopt an intergenerational approach to the public goods game, allowing each generation of subjects to leave advice for the succeeding generation via free form messages. Our results show public advice generates a process of social learning that increases contributions over time while reducing free riding. This finding suggests that, contrary to game theoretic predictions, communities may be able to achieve efficient or near efficient levels of public good provision through private contributions. (Research supported by a grant from the Office of the Dean of the College)

**What Is Coral Really Worth?: Valuing Marine Protected Areas***Estelle Robichaux '03, Economics*ADVISOR: *Ann Velenchik, Economics*

South Caicos, Turks and Caicos Islands (TCI), British West Indies (BWI) is one of the few islands in the Caribbean and North Atlantic regions that does not currently have any viable tourism industry. In fact, it is almost completely dependent on the fisheries industry for its livelihood. However, there are plans throughout the TCI to increase tourism, including on South Caicos, through the development of large resorts, cruise ship stop-overs and condominiums. Such development will most certainly affect the surrounding ecosystems and could be extremely detrimental to the pristine coral reef of the area. Many coral reef areas

within the TCI have already been declared marine protected areas (MPAs), but governments are constantly revising these decisions. It is important to establish an accurate and comprehensive economic value of the coral reef so that it can be used in cost-benefit analysis, which is used by governments when determining whether an area should become or remain an MPA. For the studied MPA, several methods were used to determine this value, including the Atlantic and Gulf Rapid Reef Assessment protocol (AGRRA), the contingent valuation method, and the travel-cost method.

**Socially Responsible Economics***Sara Parker '05, International Relations*ADVISOR: *Julie Matthaei, Economics*

In the wake of the exposure of widespread corporate corruption, the movement for socially responsible economic behavior is burgeoning. This talk will describe the four main types of socially responsible economic behavior – work, consumption, investment, and business. It will present a short history of the social responsibility movement, especially its growth over the past 30 years. Some of the main groups who have devoted themselves to the movement will be described, as well as various concrete ways in which individuals can participate in socially responsible economic agency in their everyday lives, even here at Wellesley. (Research supported by NSF-AIRE)

**Gender and Sexuality****Gender, Self-Esteem, and Adolescence (paper session)****Drowning the Little Mermaid: Relationships and Female Depression***Julia Felton '03, Psychology*ADVISOR: *Jonathan Cheek, Psychology*

Currently, the depression rate for females in the United States is double that of males. A recent book by Dana Crowley Jack, entitled *Silencing the Self*, incorporates ideas of authenticity, attachment styles and “mutuality” to describe a phenomenon she calls “self-silencing,” or the tendency for women to not voice their needs in order to avoid conflict in relationships. By examining the correlation between different factors of Jack’s theory and their corresponding representations of inauthentic behavior, I hope to present a more coherent picture of female depression and suggest refinements for current theories of treatment approaches. (Research supported by the Office of the Dean of the College)

**Memories of Adolescence and Self-Esteem***Katherine Collins '03, Psychology*ADVISOR: *David Pillemer, Psychology*

This study will examine relationships between self-esteem and autobiographical memories of adolescence. Participants will be asked to describe memories of moments in adolescence in which they felt “especially good” or “especially bad” about themselves and to rate the importance and affective quality of these memories. Because research has shown that self-esteem declines around the ages of 11-13 and then rises gradually in later adolescence and throughout adulthood, it is hypothesized that memories of negative events will cluster in early adolescence while positive memories will cluster in late adolescence. In addition, the content of the memories of individuals with high and low self-esteem are expected to differ; for instance, it is predicted that partici-

pants with higher self-esteem will describe more “redemption sequences” in which affectively negative events are portrayed in a positive light. Potential implications of the findings will be discussed.

(Research supported by the Office of the Dean of the College)

### Gender Schemas and Play Behaviors of Four- and Five-Year-Old Boys

Larissa Blustein '03, *Psychology and French* and Rose Sebastian '03, *Psychology*  
ADVISOR: Beth Hennessey, *Psychology*

By kindergarten, children, especially boys, already know which behaviors are appropriate and inappropriate for their gender. Much research has focused on children's acquisition of gender stereotypes, and on the early gender differentiation of the play behaviors of pre-schoolers. Less research, however, has attempted to link children's understanding of gender to their behaviors in schools. This study sought to establish those links among preschool boys, using both a validated instrument and naturalistic observations. It was expected that boys with stronger gender schemas would exhibit more aggressive behaviors in play, as aggression is considered stereotypical behavior for boys. However, results of this study indicated that it was the boys who exhibited both more prosocial and more aggressive behaviors who were most likely to demonstrate strong gender schemas. Therefore, boys who were better at interpreting social cues, such as gender stereotypes, were more likely to engage in social behavior with other children.

## Multicultural Research

### From the Ridiculous to the Sublime: Images and Stereotypes (paper session)

#### From Sushi to Sanshin: What Is a “Japanese”?

Jessica Berlow '03, *Political Science and Japanese Studies*

ADVISOR: Yoshihisa Matsusaka, *History*

The Western imagination has been captivated by monolithic images of ‘the Japanese’: submissive woman, samurai warrior, disciplined company worker. The

assumption persists that Japan suffers from neither the problems resulting from ethnic tensions nor marked social class gaps. However, the difficulty of characterizing Japanese society as resistant to the shocks posed by diversity becomes apparent when we consider Japan's ‘invisible’ minority, the Okinawans. During the summer of 2002, I conducted an onsite study of the Okinawan migrant community in Osaka, central Japan's largest commercial center and a culturally vibrant city. I will share my observations of how the Okinawan spirit endures in light of discrimination and pressure to become more ‘Japanese.’ Moreover, I will explore the challenges that Okinawans face in forging an identity that is both Japanese and distinctly Okinawan. The Okinawan experience raises questions not only about Japan's purported homogeneity, but also about its self-image, past, present, and future. (Research supported by a grant from the Stanford Japan Center)

#### A Response to the Ridiculous

Shirley Hsu '03, *International Relations and Economics*

ADVISOR: Lawrence Rosenwald, *English*

“Has anyone ever said anything ridiculous to you about your race, culture, or ethnicity? If so, what was your response?” Shirley Hsu interviewed over 35 Asian Americans from Maryland to Los Angeles to Boston, asking this one question to challenge the stereotype of Asian Americans as being passively aggressive. She then compiled peoples' stories into a series of monologues, in which she acts out each person's response using their words, as well as their personalities. Following the brief performance, there will be an open discussion about issues pertaining to racism in the Asian American experience. All are welcome, Asian Americans and non-Asian Americans.

#### Paradise: A Visual Tourist Destination

Catherine Cachero '04, *Sociology and Economics*

ADVISOR: Lakshmi Srinivas, *Sociology*

This exploratory study examines tourist videos and Hollywood feature films for their portrayal of the Hawaiian Islands. These two different sources of representations provide their own narrative and construction, drawing on existing language of images and stereotypes as part of the construction of an imagined world, “The Tropical Paradise.” The significance of the natural landscape is expressed and felt in the visual imagery: vibrant forests, picturesque beaches, spewing active volcanoes, strong waves and surfs, noble mountain ranges, and empty blue skies. This research finds and extracts patterns in the images presented, gaining a better understanding of how these patterned codings create a particular image of Hawai'i. Since emphasis is placed on making this destination the right kind of “Hawaiian Paradise,” visual images become simplifications, misrepresentations, and generalizations of Hawai'i. The overlap and disjuncture between the constructed, imagined world and the reality can create a mystifying experience for locals and tourists.

## Political Development and Conflict

### Danger and Conflict (paper session)

#### Terrorism in a Democratic State: The Case of ETA in Spain

Julia Meconiates '03, *Political Science and Spanish*

ADVISOR: Carlos Ramos, *Spanish*

In the spring of 1959, Basque nationalists founded ETA, a separatist group seeking independence from Spain. Forty-four years later, the Basque region is still a part of Spain and ETA has killed more than 800 people for its cause. The terrorist group was formed during the Franco dictatorship, when Basque language and culture were actively repressed. Since 1978, Spain has been a democratic state, with a new constitution that gives the Basque region considerable political autonomy. In spite

of the new political and cultural framework, ETA continues killing for its cause. Because radical nationalists continue to view Madrid as oppressor, the strategies of the various central governments (both liberal and conservative) have not been able to solve the problem of terrorism in Spain. A hypothetical plan devised and supported by the Basque government provides a chance for ending the violence and terrorism in Spain.

### **Partition in India and Palestine: A British Legacy of Conflict**

*Sushama Amrita Saijwani '03, International Relations*

ADVISOR: *Frances Malino, History*

In the midst of the twentieth century's nationalist movements and global decolonization, the British presided over two significant territorial partitions, in India and in Palestine. These contemporaneous partitions, each rooted in communal conflict, resulted in legacies of terrorism, massive population transfers and territorial disputes. This study will explore the impact of British colonial interests on communal conflict in India and Palestine from a comparative perspective and focus on how these communal conflicts were transformed into distinct national aspirations. Research will trace how this common British administration led to similar present-day situations in these regions.

### **National Missile Defense and the Bush Administration's Iraqi Strategy**

*Erin R. Ford '03, Political Science*

ADVISOR: *Robert Paarlberg, Political Science*

The Bush Administration came to office touting national missile defense (NMD) as a response to nuclear missile threats from rogue states. Yet in its confrontation with Iraq, the Administration has not stressed NMD, or even theatre missile defense (TMD). In accordance with its new National Security Strategy (NSS) the Bush Administration has instead advanced the idea of preventive war. What explains this choice? If the United States' missile defense is to be successful, it must be technologically possible, cost effective, and acceptable by other international actors. According to missile defense aims,

the threat posed by Iraq presented a rogue state that would seem to be an optimal target for the use of missile defense. U.S. strategy is evaluated as it relates to Iraq in explanation of preventive war instead of national missile defense deployment.

### **The Limits of Liberal Democracy: The Case of Indigenous Groups in Mexico**

*Sara Benitez '03, Political Science and Latin American Studies*

ADVISOR: *Peggy Levitt, Sociology*

Following the Zapatista Uprising of 1994 in Chiapas, Mexico, the issue of indigenous rights rose to the forefront of Mexican politics. The complex debate surrounding this issue reflects the difficulty of incorporating minority groups into modern liberal democracies. The basic principles of liberal democracy emphasize individuality and a sovereign, limited territory. In contrast, indigenous groups reject the supremacy of the individual by seeking group-specific rights. They also challenge the myth that autonomous regions will lead to national fragmentation. (Research supported by Andrew W. Mellon Foundation)

## Science and Technology

### **Measuring and Modeling the Physical World (paper session)**

#### **3-D Modeling of Electrorheological Suspensions in a Shear-Flow**

*Stella Offner '03, Physics and Mathematics*

ADVISOR: *Yue Hu, Physics*

Electrorheological fluids are defined as 0.1-100 mm particles suspended in an insulating liquid, which experiences a dramatic and reversible rheological change when an electric field is applied. Particles form long chains parallel to the electric field, causing the viscosity of the suspensions to increase by as much as several orders of magnitude. My research uses Matlab computer simulations to study electrorheological fluids under a steady shear-flow. The simulations model the behavior of the suspended particles as a result of varied particle spinning rates, particle size, relaxation times, and shear-flow strength. Results indicate that

average stress varies substantially as a function of particle spinning. In addition, for high shear and for low tilt angles, the simulations suggested that the onset of an electric field will cause the viscosity of the suspension to decrease. (Research supported by a Schiff Fellowship and the Office of the Dean of the College)

### **Laser Cooling and Trapping of Rubidium Atoms**

*Francesca D'Arcangelo '03, Astrophysics and Ama Baafra Abeberese '04, Physics and Economics*

ADVISOR: *Glenn Stark, Physics*

In the early 1990s, physicists developed a method to cool and trap atoms in the gas phase using laser light and magnetic fields. The technique of "laser cooling and trapping" results in the coldest matter ever produced - the trapped and cooled atoms have a temperature on the order of a few ten-thousandths of a degree above absolute zero ( $\sim 0.0002$  Kelvin). Students and faculty at Wellesley have been working over the past few years to design and construct a cooling and trapping apparatus in the Laser Lab. Building on previous work centering around the construction of highly stabilized diode lasers and a source of atomic rubidium, we completed the development of this apparatus and we successfully cooled and trapped rubidium atoms in a "magneto-optical trap" (on the last day of our ten-week research project!).

### **Basaltic Lava Flows and Conglomerates at Worlds End Reservation, Hingham, Massachusetts: Neoproterozoic Volcanism in the Southeastern New England Avalon Zone**

*Alexis K. Ault '03, Geology and Political Science*

ADVISOR: *Margaret D. Thompson, Geology*

Mafic volcanic rocks associated with the Roxbury Conglomerate in the Boston Basin, eastern Massachusetts, have long been inferred to reflect Neoproterozoic arc magmatism. However, preliminary U-Pb geochronology of these "Brighton" lava flows in several localities throughout the region has yielded zircons ranging from Neoproterozoic to Devonian in age due to inheritance. New work on flows and



associated volcanic ash cropping out south of Boston at Worlds End Reservation presents the opportunity to better constrain the age of the volcanism. Sea cliff exposures at Worlds End show a series of four conglomerates and two interbedded "Brighton" flows, all unconformably overlying the Dedham Granite. A yellowish gray volcanic ash fills vesicles within and overlies one of the flows and is the best target for U-Pb geochronology. Geochemistry and detailed petrography on a variety of samples from the locale provide additional insight into the stratigraphy and geologic history of Worlds End.

#### **Moving and Counting: Controlling a Spectrometer with LabView**

*Karen A. Hutchison '03, Physics and Philosophy*

ADVISOR: *Thomas J. Bauer, Physics*

LabView is a programming language designed specifically for laboratory instrumentation. Unlike traditional computer languages that use text commands, LabView uses icons and wires to construct a computer program. I translated a control program for a spectrometer from Microsoft Professional Basic language into image-based LabView. Spectrometers separate light into its wavelength components (colors) and measure the intensity of each by counting how many photons land on a detector in a fixed amount of time. The program allows users to step through a range of wavelengths, taking an intensity reading at each step. This creates a graph of intensity as a function of wavelength—a spectrum. Spectral scans are used to identify an unknown light source or examine the quantum mechanical properties of atoms. Since the spectrometer is not portable, I will demonstrate how my program works using a Geiger counter, which counts radioactive decay particles over time.

#### **A Digital Gallery of the Stars (panel)**

##### **A Million Pixels on the Sky**

*Emily Bowsher '04, Computer Science, Wendy Hawley '05, Astrophysics, Sarah Kohler '05, Classical Civilization, Julia Levine '03, English, Alyssa Meyer '05, Astrophysics, Christine Simpson '05, Mathematics, Marlena Whiting '05, Medieval and Renaissance Studies, and Lesley Yen '05, Economics*

ADVISOR: *Kim McLeod, Astronomy*

As students of Astronomy 206, we have learned to operate the 24-inch telescope at Wellesley's Whitin Observatory. We describe how we have used the telescope's astronomical digital camera to produce a gallery of color images and to carry out research. This year's projects include measuring the mass of Uranus by following its moons; determining the spin of an asteroid by tracking its light through the night; looking for hydrogen emission in stellar nurseries; hunting for a dying star in a globular cluster; and comparing the structures of elliptical and spiral galaxies through multicolor images and image mosaics.

#### **Synthesis of Thiopeptides (panel)**

##### **Synthesis of Thiopeptides**

*Samantha J. Friedman '03, Chemistry, Shyla N. Gowda '04, Economics, Akiva Kahn '03, English, Katherine E. Lee '04, English, Erzsi Szilagyi '04, Chemistry, and Laure-Anne Ventouras '04, Biological Chemistry*

ADVISOR: *Julia H. Miwa, Chemistry*

The substitution of an amide bond with a thioamide alters the conformation of the thionated peptide compared to the oxo version. We have employed this feature to synthesize peptides for use as possible enzyme inhibitors and structures in which to study the conformational effects of strengthened hydrogen bonding. The altered electronic structure induced by the presence of a thioamide may be useful in addressing problems such as the *in vivo* cleavage of an inhibitor for the enzyme thimet oligopeptidase. The synthesis of a 12-residue thiopeptide allows for the study of the conformational effects of altered hydrogen bonding in the b-hairpin structure. A 100% folded control and a 100%

unfolded control will be used to quantify the extent of hairpin formation using CD and NMR spectroscopy. (Research supported by the ACS Petroleum Research Fund, Research Corporation, Brachman Hoffman Fund, Marie and John Zimmermann Fund, NSF REU, and the Howard Hughes Medical Institute)

#### **Self and Identity**

#### **Influences on Performance and Sense of Self (paper session)**

##### **Go Out and Play: An Examination of the Effects of Exercise on the Well-Being of Wellesley Students**

*Rachel Millstein '03, Psychology*

ADVISOR: *Elissa Koff, Psychology*

The effects of exercise were examined with relation to the construct of well-being. Approximately 150 female college students completed questionnaires examining constructs composing well-being: psychological well-being, self-perception, body image, coping, perfectionism, subjective well-being, and affect. Half of the subjects participated in six-week exercise classes of aerobic, strength, or sport skills nature, while the other half did not change their exercise behaviors. It was hypothesized that those subjects in aerobic and strength training classes would show positive improvements in all of the constructs of well-being. Subjects enrolled in sport skills classes were expected to show changes in different domains and more minor increases in well-being. Control subjects were not expected to show any changes in well-being. The hope is that these findings will influence more people to exercise regularly. (Research supported by the Office of the Dean of the College)

### **Creativity, Reward, and Distraction: Preschoolers' Memory of Task and Environment**

*Rashna Mehta '03, Psychology and Tara Chiatovich '03, Psychology and French*  
 ADVISOR: *Sheila Brachfeld-Child, Psychology*

Research demonstrates that offering a reward for a creative task diminishes creativity. One explanation is that the reward acts as a distraction. According to this hypothesis, offering a reward and placing distracting objects in the room during the task should both yield similar results: decreased creativity, poor memory of the task, and high recall of the environment. Thirty children aged 3-5 years were assigned to one of three groups: control, reward, or distraction. Children participated in two sessions, four days apart. In the first session, all completed the same creativity task – making a collage using geometric shapes. The control group completed the task without a reward or distractions. The reward group was promised a reward upon completion of the study. The distraction group performed the task with three distracting objects in the room. The second session assessed memory of both environment and creativity task. The groups' performance will be discussed.

### **What Makes a Good Friend?: Preschoolers' Popularity and Social Skills as Predictors of Friendship Quality**

*Tara Chiatovich '03, Psychology and French*  
 ADVISOR: *Tracy Gleason, Psychology*

Prior research demonstrates that children's popularity in the classroom is linked to their social skills (e.g., Connolly & Doyle, 1981; Howes, 1988) and that both are related to having friends and the quality of those friendships (e.g., Brendgen, Little, & Krappmann, 2000; Sebanc, 2000). This study examined characteristics of preschoolers' friendships and how children's social skills and classroom popularity contribute to their relationships with classmates. Children were shown pictures of their classmates and asked how often they played with them and whom they "liked to play with

the most." Additionally, they rated the quality of their friendships and their own social skills through structured interviews. Teachers also evaluated children's social skills and the quality of their friendships by completing questionnaires. To check for changes in children's friendships and popularity, children again responded to questions about their peers one month later.

### **High School Experiences and Academic Self-Concepts of Wellesley College First-Years**

*Meghan Shaughnessy '03, Psychology and Mathematics*  
 ADVISOR: *Beth Hennessey, Psychology*

Each fall, students arrive at colleges and universities across the world to begin their first year of college. Within each new diverse cohort of first-year students, there is immense variation in students' perceptions of their academic abilities. Not only do these self-perceptions serve to establish an emotional tone for students' college experiences, they have also been shown to have a significant impact on the students' actual performance levels. But why do college students vary so greatly on this dimension? The wide spectrum of their high school experiences may help to explain their differences in academic self-concept. This study is an exploratory investigation of the role played by a number of possible influential aspects of the high school experience in determining the mathematical, verbal, and general school self-concepts of Wellesley College first-years. High school variables examined include school type (public, private, religious, or public exam school), athletic participation, extent of involvement in high school, and type of admission to Wellesley College.

## **Social Institutions and Processes**

### **Kingdom of the Gods? (paper session)**

#### **Redefining Rationality: Religious Arguments in Public Deliberation**

*Bettina Raquel Scholz '03, Political Science and Russian Area Studies*  
 ADVISOR: *Joel Krieger, Political Science*

Do religious arguments belong in the public deliberation advocated by political theories of democracy and multiculturalism? If secular rationality is not a neutral framework then its ability to ensure inclusion and equality in a multifaith society is questionable. Yet, political theorists' discussions of multiculturalism have not often dwelt on incorporating religious communities in political deliberation. Actual as well as perceived differences between religious groups and other marginalized members of society such as ethnic and racial communities make it difficult to fit religious groups into theories of discussion that assume a universal conception of rationality. Attempts to create unity by silencing alternative rationalities can be counterproductive. Yet, can discussion based on multiple conceptions of rationality be sustained? (Research supported by a Schiff Fellowship)

#### **Piety and Polity: Judaism and Political Participation in the Greco-Roman Diaspora**

*Rachel Isaacs '05, Religion*  
 ADVISOR: *David A. Bernat, Religion*

Jewish citizens play an important role in current American politics, through direct and indirect involvement in government. However, how did the Jewish communities of ancient times balance their responsibilities to their religious and civic communities, if they did at all? Through an examination of the writings of Philo and Josephus, along with other Jewish texts of the Greco-Roman era, I describe the ideal role for Jews in civic, secular government. I also comment on the influence that the Greek philosophers, Plato and Aristotle, had on Philo's view of the Jew's role in politics, and where Philo diverges from classical Greek thought.

Through an analysis of Hellenistic Jewish literature of this time period, we can gain a greater understanding of Greco-Roman contributions to Jewish political thought.

**Who Do You Say That I Am?: A Search for Orthodoxy in *The New Century Hymnal***

Lisa M. Priest DS '03, Religion

ADVISOR: Stephen A. Marini, Religion

Words and music combine in worship to operate on a different level than in any other context, raising the singer to a worshipful state by the combination of language and tone. But when the text of an old favorite hymn has been altered, the singer is jolted out of this liminal state into discordance, the very opposite of what is necessary for a contemplative, joyous worship experience. In 1995, the United Church of Christ published *The New Century Hymnal*, created by a committee charged with bringing the worship of member churches into the twenty-first century. New hymns were added and old ones altered to make their language inclusive. Critics of the hymnal maintain that the alterations create basic changes in the orthodox Christian theology of the denomination. Supporters welcome the hymnal's "open and affirming" outlook. My examination of changes in selected hymn texts from the eighteenth century to the present attempts to determine if the new hymnal achieves the goals set for it by the national UCC leadership without creating a completely new theology.

**Prayerful Politicking: The U.S. Catholic Bishops' Influence on American Public Policy**

Kathryn Harvey '03, Political Science

ADVISOR: Stephen Marini, Religion

What is the proper relationship between church and state in American politics today? Specifically, what role should the Catholic Church play in the political sphere? Since the Second Vatican Council in the 1960s, the U.S. Conference of Catholic Bishops has assumed an influential presence in American decision-making by issuing pastoral letters on political issues. To what extent do the

Conference's statements affect policy making in the U.S.? How should individual Catholics respond to these official statements by the bishops? My research explores Catholic participation in American government, from the apprehension surrounding John F. Kennedy's presidential campaign to the modern ideological differences among Catholic members of Congress. I examine the influence of the bishops' pastoral statements on American political issues in the context of the historical relationship of the Catholic Church and American policy-making. My analysis focuses specifically on the bishops' letters on nuclear war and economic justice.

**The Arts**

**Two Documentaries (exhibition/film)**

**El Milagro Verde**

Jennifer Redfearn DS '03, Environmental Studies and Tuyet Catrina Huynh DS '03, Environmental Studies

ADVISOR: Salem Mekuria, Art

*El Milagro Verde* is a film documentary about two Earthwatch projects conducted by Drs. Eric Olson (Wellesley College) and Lee Dyer (Tulane University), in two geographically distinct locations in Costa Rica. Both researchers, accompanied by Earthwatch volunteers from different countries, investigate the relationships between plants and herbivores. Studying the ecological interactions between these species enables scientists to better understand rainforest dynamics and predict environmental changes that may occur over time as a result of climatic or demographic variation. The tropical forests in Costa Rica possess an incredible diversity of plant and animal life.

Captured in this film are the rich compositions comprised of lush and dense plants and brightly colored birds and insects. Through the visual images and the stories from the researchers and volunteers, Redfearn and Huynh hope this documentary will be used to raise awareness about environmental issues concerning tropical

forests and demonstrate the efforts made by individuals to protect and conserve them. (Research supported by the Office of the Dean of the College and Friends of Horticulture)

**Running to the Sky**

Tuyet Catrina Huynh DS '03,

Environmental Studies

ADVISOR: Salem Mekuria, Art

In the documentary film, *Running to the Sky*, Writer/Director/Producer Tuyet Catrina Huynh shares the real-life story of how her family had to flee war-torn Viet Nam on the day Saigon fell to North Vietnamese forces April 30, 1975. The story is told through interviews with her parents, Mr. Tuyen Huynh and Mrs. Pierrette Millet Huynh, and is made enriched by their remembrances of a chance meeting, eventual courtship, and finally marriage. Surviving two wars and their commitment to their three daughters has helped keep their marriage together. The film illustrates the complexities of raising a family and living their lives through a sort of multicultural prism with Vietnamese, French, and American influences, and an overlay of dual religions, Buddhism and Catholicism, practiced in their home setting. *Running to the Sky* also attempts to capture the notion of survival and compassion through the personalities of two main characters – Ma and Ba (Mom and Dad). This documentary is tender, sad, startling, and at times very funny.

**Image + Text (exhibition/panel)**

**Image + Text**

Ella Coscolluela '03, Studio Art, Sarah Ligon '03, Studio Art, Molly Earle '03, English, and Kate Erickson '05, English and Cinema and Media Studies

ADVISOR: Judith Black, Art

As photography students, we have been involved for several semesters in an investigation of the relationship between images and text. Both images and words can be manipulated, distorted, or presented as fact. Many questions have spurred our thoughts: How do we tell our own stories? How do we narrate the story

of another? In what ways do we navigate the boundaries between fiction and reportage? What is the truth and what responsibility as artists do we have to the truth?

Sarah's first documentary project found the use of text inappropriate, while her second found it essential. Using photography and drawings, Ella's projects have sampled text from the Oxford English Dictionary, Grimm's fairy tales, and personal narrative. Kate has paired childhood memories with recent photographs to create half-true vignettes. Molly has used photographs to inspire longer fictional works.

When does text need pictures, when do pictures need text? Our work explores this mandate.

### **The Human Figure: Form and Feeling (exhibition)**

#### **Expressions in the Abstracted Figure**

Joanne Ng '03, *Psychology*

ADVISOR: Carlos Dorrien, *Art and Margaret Keane, Psychology*

The human figure is a truly fascinating and inescapable phenomenon. By taking a closer look, one would realize that although this comes in various shapes and sizes, it is still very effective in conveying both simple and complex universal thoughts and emotions. Many have sought to capture and portray the ideal figure. However, no distinct and unified standards exist due to the plethora of cultures, beliefs, and values. My bronze and marble sculptures have sought to go beyond the pop culture definitions of beauty and focus on the basic forms manifested in the dynamic human figure. Through the use of basic lines, curves, and shapes, my goal was to demonstrate that the figure, even in its most abstract and simple form, is capable of conveying its message to the audience, as well as exhibiting the charm and mystery that has captivated us all.

### **Making History: Creating Henry Purcell's *Dido and Aeneas* at Wellesley College (interactive/performance)**

#### **Making History: Creating Henry Purcell's *Dido and Aeneas* at Wellesley College**

Brooke Bryant '03, *Music and Medieval/Renaissance Studies*

ADVISOR: Claire Fontijn-Harris, *Music and Sally Sanford, Music*

The Wellesley College Collegium Musicum's recent production of Henry Purcell's *Dido and Aeneas* introduced its audiences to performance archaisms such as Restoration English pronunciation and seventeenth-century vocal production, staging, gesture, and dance. Productions like this one raise an important question: do "historically accurate" performances enable modern audiences to more fully understand historical material, or do they alienate them from it? Performance, social conventions, and behavioral standards in Restoration England are different enough from those in modern American culture to make them seem foreign and abstract. In order to promote a modern understanding of that historical culture, audience members will be invited to participate in exercises that will introduce them to the Restoration world. After this familiarization process, the *Dido and Aeneas* cast will present scenes from the opera in order to demonstrate that committed, impassioned performances enable meaning to transcend temporal boundaries. (Research supported by a Schiff Fellowship)

PERFORMERS: Cecilia Lam '03, *Math*, Evangeline Rich '06, Jennifer Yum '05, Alexandra Dilley '03, *Music*, Stephanie Kacoyanis '05, *English*, Ariel Applebaum-Bauch '06, Christiana Mollidrem '06, Leslie Oesterich '06, Elise Passamani '06, and Emily Carrigan '06.

1:30 – 2:40

**About Wellesley****The Power and the Glory?:  
Serving on College Government  
Cabinet (panel)****The Power and the Glory?: Serving on  
College Government Cabinet**

*Rachel M. Hezel '03, Italian Studies and Political Science, Nicole M. Deterding '03, Sociology, Sunita S. Palekar '03, Peace and Justice Studies, Carla J. Weiss '03, Political Science, Dow-Jane Chi '03, International Relations, Cara West '03, Economics, Heather Long '04, Economics and Comparative Literature, and Sarah Kelly '05*

ADVISOR: *Joanne Murray, Center for Work and Service*

Upwards of 15 hours a week. Meeting after meeting. Responding to hundreds of E-mails. The life of a College Government Cabinet member. Is CG just another campus acronym, or is it something more? Former College Government Cabinet members gather to discuss the trials and tribulations faced in the task of representing a campus as diverse as Wellesley. Being involved in College Government is an excellent opportunity to learn about the inner workings of an institution run for, and largely by, women. As members of cabinet, the panelists have had unique opportunities to stretch their diplomatic, organizational, and interpersonal skills, learning valuable lessons, and preparing them for life after Wellesley. In contemplating the pleasures and pitfalls of working with administration and for fellow students, former College Government Cabinet members will reflect upon their experiences and how their service has enhanced their Wellesley educations.

**Change****Global Feminism?: Women on the  
Web (panel)****Global Feminism?: Women on the Web**

*Susan Elliott '03, Architecture, Victoria Raines '04, English, Kristen Ruff '03, Women's Studies, and Leslie Hale Warner '03, Women's Studies*

ADVISOR: *Durba Ghosh, Women's Studies*

In a quickly globalizing economy where capital, information, and technologies travel at high speeds, how have women's movements been changed and reconfigured? Come join Women's Studies 314 as they share some of their final research projects examining transnational women's organizations as they are represented on this thing we call the "Worldwide Web." How has the Web enabled certain types of transnational feminist solidarities? In the process, has this particular form of media created new hierarchies between women of different regions, religions, and nationalities and how so? We certainly don't have all the answers, but will raise some important questions about the process and pitfalls of a "global feminism."

**The World Scene (paper session)****Democracy in the European Union?**

*Marret Arfsten '03, Political Science*

ADVISOR: *Edward A. Stettner, Political Science*

At the beginning of the twenty-first century, the gradual process of globalization in the economic, social, and cultural spheres of life has led to many profound political changes, one of the most important being the introduction and consolidation of democratic institutions and practices in countries around the world. While democratic theory has examined at length the challenges to democracy that emerge from within the boundaries of the nation-state, the questions posed by the rapid growth of complex interconnections and interrelations between states and societies remain largely unexplored. The

European Union, an ambitious project to create a regional political system beyond the established European national democracies, presents a unique challenge for democratic theory. The traditional concepts and institutional requirements for democracy need to be reevaluated in order to assess the possibility for effective and democratic European Union governance.

**The Impact of the Open Circle  
Program: The Value of Social Skills in  
a Changing World**

*Oni Lusk-Stover '05, American Studies and Political Science*

ADVISOR: *Shoshana Simons, The Stone Center*

In the challenging world in which we live, it is becoming increasingly important that we help children to develop basic social skills including communication, self-control, problem-solving, and concern for others. The Open Circle Program works in over 500 elementary schools across New England and New Jersey training teachers to implement a curriculum founded on the development of primary social skills that can enable children and adults to foster the creation of respectful and safe learning communities. This presentation will explore the basic tenets of the program, as well as present personal observations of its implementation in the classroom as teachers' perceptions of the ultimate effectiveness of the open circle curriculum and training.

**Nuclear Weapons in the Developing  
World**

*Bani Bedi '05, Physics*

ADVISOR: *Robbie Berg, Physics*

With the recent increase in the number of nuclear weapons states in Asia, it is time to question whether a developing nation, such as India or Pakistan should have a nuclear weapons program since the money spent on developing such a program could be more readily used towards increasing literacy and better health care facilities. This presentation looks into the decision that the major

countries of South Asia made to go nuclear, in order to understand both the national political and defense reasons for such a decision and also its international consequences. I also want to conduct an in-depth comparative analysis of the Indian and the Pakistani nuclear programs. I hope to answer questions such as: Which country went nuclear first? Why did they do it? Who (if anyone) helped the two countries out? What are the possibilities of either country using its weapons? An important part of my research will highlight the role that the United States played in developing such programs in these countries, and what the relationship between the U.S. and South Asia is (regarding technology exchange) at present.

### Economic Issues

#### International Economics (paper session)

##### Who Pays the Corporate Tax in an Open Economy?

*Ioana Maria Petrescu '03, Economics and Mathematics*

ADVISOR: *Karl E. Case, Economics*

Although the corporate tax is levied on the privilege of doing business as a corporation, corporations may not actually pay this tax. Market dynamics may shift tax burdens to consumers through higher prices, to the labor force through lower wages, or to owners of capital in the non-corporate sector. I will explore which of these groups potentially pays a tax imposed on the corporate sector of one country in an open economy. Using economic theory, I will examine the effects of this tax on wages, the return to capital, and on the quantities of capital and labor used, as well as on the prices and on the quantities of goods produced and consumed. (Research supported by a Schiff Fellowship)

##### What Is a “Worker”? Defining “Worker” Through International Labor Law

*Liz Mandeville '04 International Relations*

ADVISOR: *Rorden Wilkinson, Political Science and Elizabeth DeSombre, Political Science*

The International Labor Organization (ILO) has, since its creation, provided an international dimension to the domestic push for improved working conditions. In pursuit of this goal, the ILO has generated more than 184 conventions on various aspects of work. Yet, despite efforts to match the generation of conventions to the changing exigencies of capitalist production, the idea of what constitutes a ‘worker’ has remained largely static. By conducting a critical examination of the ILO’s 184 conventions, my research reveals that only modest changes have occurred in the way in which “worker” is conceived within the ILO. This paper, by analyzing ILO conventions across four periods, traces not only the relatively static nature of this definition, but also the social forces that have underpinned its (lack of) development. The paper concludes with an exploration of the implications of such a lack of development at the outset of the twenty-first century. (Research supported by the Office of the Dean of the College)

##### Maid for Development: Transnational Filipina Domestic Servants and Philippine State Development Policies

*Charlene Wang '03, International Relations*

ADVISOR: *William Joseph, Political Science*

The Philippines is the top labor exporter in the world, with over eight million workers overseas, a majority of whom are women primarily working as domestic servants in 160 different countries. Using foreign exchange remittances from these workers to “develop” the economy, the Philippine state migratory apparatus supports patterns of gendered migration. As a result, the government has created an iconic representation of these transnational domestic servants as the nation’s “modern-day heroes.” My thesis seeks to determine whether or not exporting women as transnational domestic servants is an effective development strategy. The

thesis addresses several fundamental questions in feminist development enquiry: How is domestic work by women naturalized and reproduced on a state level? How do nations with a “comparative advantage in labor” survive in a global capitalist economy without reducing their citizens to exported products? How does the way in which states define their developmental goals construct gendered roles and provide spaces for women to renegotiate their positions in society?

##### The Impact of IMF Concessionary Programs on Poverty

*Zlata Hajro '03, Economics and German*

ADVISOR: *Joseph P. Joyce, Economics*

During the 1980s, the IMF introduced concessionary programs, which target low-income countries and aim at achieving high-quality economic growth in the developing world. During the same period, the Fund increased significantly the number of loans and programs for these countries. In 1999, the IMF renamed its concessionary program the Poverty Reduction and Growth Facility (PRGF). This marked a strong commitment of the Fund to reducing poverty while encouraging growth. However, very little is actually known about the impact of the IMF concessionary programs on poverty in the developing world. My thesis looks into this relationship using empirical evidence and examines whether poverty worsens in countries that adopt the concessionary programs of the Fund. Moreover, the study explores how other factors, such as corruption and bureaucratic strength, affect poverty.

### Gender and Sexuality

#### U.S. Women’s Lives: Collective Memory and Biography (panel)

##### First Person Plural: U.S. Women in the Twentieth Century

*Rebecca Ellis '06, Eleanor Koh '03, Art History, Emily Oldshue '06, and Christine Shin '03, English*

ADVISOR: *Nancy Marshall, Women’s Studies*

Women's history sometimes seems to be about other times, other people, but not about our own lives. Women's Studies 222 has spent the semester studying women in contemporary American society from both a sociological and an historical perspective. For our term projects, we have examined U.S. women's lives through the lenses of memoirs, autobiographies, and semi-autobiographical works. We will present stories of women's lives and our research into the historical and/or social context of their stories – telling history in the first person plural.

## Science and Technology

### Quantum Artistics (exhibition)

#### Quantum Artistics

*Chizoba Nnaemeka '04, Philosophy*  
 ADVISOR: *Robbie Berg, Physics*

Can an artistic pulse emerge from a science that has often lacked an aesthetic component? Physics is the idealist of the natural world; it strives to draw harmony from the chaos of the largest systems to the mystery of the smallest particles. There is elegance not only in its mission but in the concatenation of formulas, functions, and theories that repel even the most curious observers. I have always sought to connect the sciences to both an aesthetic and utilitarian beauty and have found physics a particularly challenging domain to both vulgarize and prettify. Through a series of drawings, paintings, and perhaps even some poetry, I will represent, refashion, and reinterpret the body of knowledge I have encountered through my studies of physics, heeding special attention to the field of quantum mechanics and the philosophical complexities and charms hidden beneath its wave functions, the Schrödinger equations, and the Uncertainty Principle.

### Tied up in Knots (interactive/exhibition)

#### Interactive Exhibits in Knot Theory

*Elizabeth Bellenot '05, Mathematics,*  
*Megan Heenehan '03, Mathematics,*  
*Charlotte Henderson '03, Mathematics and*  
*English, Ivana Kalea '04, Mathematics*

*and Computer Science, Cecilia Lam '03,*  
*Mathematics, and Erin Sullivan '03,*  
*Mathematics and Classical Civilizations*  
 ADVISOR: *Megan Kerr, Mathematics*

Topology deals with objects that can be stretched, twisted, shrunk, and bent and still be considered the same object. Knot theory is a branch of topology that deals with knots: Take a piece of string, tie it around itself, then glue the loose ends together. How do you describe your knot? If we also make a knot, is it the same as yours? In knot theory many of the problems are easy to conceptualize, although not always so easy to solve. The hands-on, interactive exhibits will help answer the questions above and provide visitors with a sense of what it is like to study advanced mathematics.

### Fun with Mathematics (exhibition)

#### Arranging Blind Dates and Directing Traffic: An Interactive Hands-on Exhibit in Mathematics

*Kristine Amari '05, Bonnie Archampong '04,*  
*Economics, Frances Liu '05, Risa*  
*Picazo '04, Economics and Mathematics,*  
*and Erin Sullivan '03, Mathematics*  
 ADVISOR: *Ann Trenk, Mathematics*

Math 225 students will show you some exciting hands-on math puzzles and models. Can you design one-way streets for a town so that traffic flows smoothly? Can you help a dating service arrange blind dates on consecutive nights and in different restaurants so that everyone dates everyone else and samples each type of food? Come to our exhibit and play with the models and learn how to solve these and other fun problems. This exhibit is designed for the general public – no background in mathematics is needed or expected!

### Four-Dimensional Art (exhibition)

#### Four-Dimensional Art

*Zi Dong Fan '04, Mathematics and*  
*Computer Science, Elizabeth Pontius '03,*  
*Mathematics, Elizabeth Sproat '03,*  
*Mathematics and Cognitive Science,*  
*Jessica Thorn '04, Mathematics, and*  
*Jennifer Weaver '04, Mathematics and*  
*Psychology*  
 ADVISOR: *Mira Bernstein, Mathematics*

The fourth dimension is an elusive concept for most people. Physicists tell us that we live in a four-dimensional universe – three spatial dimensions plus time. Mathematicians, however, need not be constrained by the physical world: we can study the geometry of a hypothetical universe with four *spatial* dimensions. The human brain, wired for a 3-D existence, cannot fully visualize what goes on in such a universe, but we can still get a glimpse of it by making 3-D models of 4-D objects (just as we can draw 2-D pictures of 3-D objects). Our models are made using a mathematical construction toy called Zometool. They are huge, intricate, and beautiful – as much art as they are math! Come bend your mind and stretch your imagination, or just enjoy our multicolored artwork and build some models of your own. Absolutely no math background required.

### Factors Affecting Organelle Movement in *Arabidopsis thaliana* (panel)

#### Factors Affecting Organelle Movement in *Arabidopsis thaliana*

*Saroj Fleming '05, Brita Jessen '04,*  
*Biology, Joy Delamaide '05, Biology, and*  
*DeeDee Chen '03, Economics*  
 ADVISOR: *Martina Königer, Biological Sciences*

The effects of various environmental and hormonal stimuli on organelle movement are being studied using wild type and mutant plants of *Arabidopsis thaliana*. We are testing whether there is a relationship between organelle movement and photosynthesis in response to these stimuli. We are investigating the importance of chloroplast movement in prevention of high light damage by measuring zeaxanthin levels to determine whether chloroplast movement mutants compensate through the accumulation of these protective carotenoids. We are particularly interested in chloroplast movement patterns as a result of various CO<sub>2</sub> and ABA levels, a plant hormone produced in response to water stress that induces stomatal closure. In addition to chloroplasts, we are interested in whether mitochondrial shape and distributions in various cell types vary with different light

intensities. Taken together these projects will provide a better understanding of the dynamic changes in the positioning and shape of these organelles.

**LogoChip Projects: An Exhibition of Electronic Inventions (exhibition)**

**LogoChip Projects: An Exhibition of Electronic Inventions**

Nozomi Nakayama '03, Chemistry, Melissa Rice '04, Physics, Emily Bowsher '04, Computer Science, Carly Satsuma '04, Biological Sciences, Sarah Qidwai '05, Xan S. Chacko '05, and Paulina Ponce de Leon Barido '05  
 ADVISOR: Robbie Berg, Physics

We are increasingly surrounded in our lives by boxes filled with electronics, but for most people (including many scientists) the inner workings of these boxes remain obscure and mysterious. *The Art of Electronics* (Physics 219) attempts to remove much of this mystery by giving students the tools they need to build their own electronic inventions. Come see students show off their often playful and whimsical creations from this year's course.

**Self and Identity**

**The Individual in Context (paper session)**

**The Best Listener**

Megan Bird '03, Spanish  
 ADVISOR: Marjorie Agosin, Spanish

For over four centuries, the ninth region of Chile has been the setting for violent conflict as the once large and prosperous indigenous nation, the Mapuche, have resisted invasion and occupation of their land by the Spanish and Chilean governments. The Mapuche, despite persistent discrimination and the lack of recognition of their rights as an indigenous nation, continue to celebrate a vibrant and rich culture. During my study abroad in Chile as a junior, I lived in a rural Mapuche community. This experience has since become the fruit of an extensive writing project. My initial motivation for living in the community was academic but the

education I received transcended my academic, personal, and emotional development. My work this semester has been a journey in itself as I convert my journal writings into a coherent whole that captures the essence and the beauty of the Mapuche.

**Personality and Social Support in Dating Relationships**

Grace B. Kwak '04, Psychology and Spanish  
 ADVISOR: Julie K. Norem, Psychology and Faby Gagné, Visiting Scholar of Psychology

The present study examines the association between goal pursuit strategies (defensive pessimism v. strategic optimism) and the type of social support from a significant other. Participants were prescreened for defensive pessimism and strategic optimism. Sixty participants were invited to the lab with their partner. Each couple was assigned to either an informational or emotional support condition. Participants gave a four minute videotaped speech after reading a handwritten note by the partner indicating the predetermined support. Afterwards, two objective viewers rated the videotaped performances of the participants. We hypothesized that people would benefit most from social support that corresponds to their goal pursuit strategies. Defensive pessimists would benefit from informational support that accommodates their reflective thinking, and strategic optimists would benefit from emotional support that encourages their positive attitude.

**Social Institutions and Processes**

**Are Our Schools Created Equal? (paper session)**

**Alternative Education: Integrating Farming into Secondary School Curricula**

Guinevere Higgins '03, Peace and Justice Studies and Suzanne Z. Slezak '03, Anthropology  
 ADVISOR: Ken Hawes, Education

This project combines observation and research of several nontraditional learning institutions that incorporate farming and gardening into their curriculum. The

culmination of this research is a series of mini ethnographies of several independent secondary schools: a traditional New England boarding school with a strong emphasis on farm work, a Quaker school that promotes stewardship of the land and a semester-long program run by an elite private school on a mountain farm in Vermont. The aim of our project is to explore the various ways that young people grow and develop through hands-on, experiential learning. What are the merits of integrating farm work with a traditional academic curriculum? How has this integration been successful? What are its drawbacks? By examining these and other questions, we will present our findings on what constitutes the ideal farm school.

**Teacher Quality and Alternative Certification: A Study of Teach for America and Its Impact on Our Nation's Schools**

Sarah Garrett '03, Urban Studies  
 ADVISOR: Barbara Beatty, Education

"I call upon the most determined and sought-after among you to provide leadership to ensure that the United States lives up to its promise." – Wendy Kopp, founder and president of Teach for America

An entire generation of teachers nationwide will retire over the next few years, leaving our schools severely short of teachers. Alternative certification programs such as *Teach for America* have emerged in response to the shortage. Teachers from these programs are not certified by the same means as traditional teachers, and many feel that the teachers produced by these programs are under-qualified and may do more damage in the classroom than good. The debate over teacher quality and alternative certification programs is raging, with programs such as *Teach for America* at the heart of the dispute. I will try to determine some of the possible effects of TFA within the context of the larger debate over teacher quality. What types of students apply to TFA? What is their motivation? If the majority of people who do TFA move on after two years, how much good is the program actually doing for our schools? I will seek to answer these questions and

offer some policy recommendations about the long-term effects of alternative certification programs, such as *Teach for America*, on our nation's schools.

### **Environmental Policy: Determinants and Effects of Environmentalism (paper session)**

#### **Accounting for Hazardous Waste Trade in Developing Countries: An Analysis of West African Countries and Their Participation in the Obsolete Pesticide Trade**

*Min Kyung (Cathi) Kim '03, Political Science*

ADVISOR: *Elizabeth DeSombre, Political Science*

What are the driving forces behind the importation of hazardous waste into developing countries? Under what conditions is a country more prone to allowing toxic waste into its borders? In spite of regulatory measures such as the Basel Convention, the issue of hazardous waste disposal has become increasingly complex and ambiguous. In spite of its virtual disappearance from national headlines, the prevalence of the hazardous waste trade continues to afflict both developing and developed countries. Through a case study analysis of the West African region, this study proposes economic, political, and environmental determinants in accounting for the amount of hazardous waste imported into developing regions.

#### **First World Messes Moved to the Third?: Environmental Degradation in South America**

*Sarah Schoenbach '03, Environmental Studies*

ADVISOR: *Elizabeth DeSombre, Political Science*

Citizens of the developed world have, as a function of their industrialized economies, clamored for the protection of their natural environment: for businesses to either not pollute or to clean up those messes that they create. On the surface, this pollution of the developed world appears to have stopped. But have these polluting industries simply relocated to the developing world and degraded it as they originally did their home countries? This

study examines the factors that contribute to environmental degradation in the developing world, specifically South America, with a focus on the impact of national and multinational chemical industries on the natural environment. Other factors examined include the wealth of developing nations, the national importance of agriculture and industry, the total available land mass and the percent of that land devoted to agricultural production, government corruption levels, and the multinationals' countries of origin.

#### **Think Globally about Consumption Locally**

*Abigail Tinker '04, Environmental Studies*

ADVISOR: *Elizabeth DeSombre, Political Science*

The developed world, with only 25% of the world's population, claims most of the world's consumption. This includes consumption of 85% of all forest products and 75% of all energy produced in a year while producing 75% of all pollutants and waste. This consumption has grave consequences for the environment and must be reduced in the interest of environmental sustainability. But to design solutions we must first understand consumption and what affects it. I examined the differing levels of environmentally negative consumption in Canada, France, Italy, Japan, Germany, the United Kingdom, and the United States. Then, I studied how a country's population density, wealth, level of government consumption, and general environmental performance affect its level of consumption.

#### **From Ancient Customs to Modern Conservation: An Analysis of the Environmental Friendliness of Tribal Fishing Laws**

*Jessica S. Bernfeld '04, Political Science*

ADVISOR: *Elizabeth DeSombre, Political Science*

What factors determine the extent to which Native American tribal policies on fishing are environmentally friendly? What measures, if any, are being taken by tribes in an effort to achieve the sustainability of fisheries on reservation land? What has led to the creation of these policies? As semiautonomous nations, tribes have a

potentially different set of priorities from nontribal entities regarding fish and fishing practices, and are subject to different government regulations. In an examination of the fishing policies of eight federally recognized tribes, it was determined that religious rituals and cultural traditions, revenue generated from fishing, and treaty history all play a role in the level of environmental friendliness of a tribe's policies, while tribal wealth does not. These findings suggest that tribes will work to protect the things they hold to be sacred, including fishing, and that cultural and religious traditions matter more than economic factors when it comes to issues of conservation.

### **Health and Social Policy (paper session)**

#### **Equity and Policy: Factors Affecting State Health Access**

*Laura M. Flahive '03, Political Science and Art History*

ADVISOR: *Jeff Gulati, Political Science*

Since the failure of the Clinton health initiative in 1993, the fate of American health policy is primarily in the hands of the states. While the states confront the daunting challenge of covering their populations with the similar legislative and bureaucratic options, health policy outputs vary greatly among the states. As a result, our nation must face questions of equity in a context of New Federalism. My thesis research, presented here, attempts to answer the following questions: What factors lead states to increase accessible health coverage? What factors prevent other states from legislating to increase health access? Quantitative analysis and descriptive case studies considering political, demographic, and economic characteristics in relation to health coverage, will be presented. (Research supported by a Schiff Fellowship)

### Can Offers Be Coercive?

Sara Mrsny '03, *Philosophy*

ADVISOR: Alison McIntyre, *Philosophy*

After Norplant was approved in December 1990, several states began to offer cash bonuses to women receiving public assistance who agreed to use long-acting birth control. Among other objections, such initiatives were often accused of being coercive. A coercive proposal is usually defined as a threat that diminishes an agent's freedom of choice to the point that her subsequent action is said to be forced or involuntary. Offers like birth control incentive programs, however, provide an agent with options she previously did not have. Is it possible for a proposal that expands an agent's options to be coercive nonetheless? In my talk, I would like to use the Norplant example to highlight some of the philosophical problems involved with defining coercion and distinguishing between threats and offers. (Research supported by a Schiff Fellowship)

### Roe v. Wade: From Revolution to Resolution

Colbie Paulson '03, *American Studies and Political Science*

ADVISOR: Jonathan B. Imber, *Sociology*

*Roe v. Wade* established the right to an abortion and has withstood great controversy over the past thirty years. Even with possible modifications to the ruling as a result of conservative judicial appointments to the Supreme Court, the right to an abortion will likely remain intact. The question then becomes how long America will continue to be one of the only nations polarized over the issue of abortion. Grassroots efforts to ameliorate the social divide over abortion in America will be examined in their historical and present-day contexts. The power of new interpreters of abortion and American views of abortion within the American context will be scrutinized to discern the possibilities for eventual reconciliation of the issue. Great observers of American culture such as Edmund Burke and Alexis de Tocqueville will be utilized in order to judge whether or not America can ever move from the revolutionary effects of *Roe v. Wade* to a resolution.

## The Arts

### Brighton Beach, Moscow, and All Points Between (performance)

#### Brighton Beach, Moscow, and All Points Between

Heather Boas '03, *Classical Studies and Theatre Studies*, Andrea Kennedy '03, *Theatre Studies and Women's Studies*, Cat Larrison '04, *Theatre Studies*, Sara Simons '03, *Psychology*, Kate Stebinger '04, *Religion and Women's Studies*, and Danielle Young '03, *Psychology*

ADVISOR: Nora Hussey, *Theatre Studies*

Over the past year, the Wellesley theatrical community has brought an array of important stories to campus. This 70 minute presentation will summarize and retrace a portion of the work created during the 2002-2003 season. Orchestrated by WCT director Nora Hussey and Wellesley student directors, this piece will focus on the importance of communication and establishing compelling relationships between actors on stage. Fallen women and adolescent sexuality collides with contemporary urban life to make the stories as rich as they are entertaining. The presentation will provide an alternately touching, funny, and insightful look at an assortment of issues all of which fall under the umbrella of the bonds that unite us in these challenging times. From Brighton Beach to prewar Germany, the stories abound with the richness of the human experience.

### From Schubert to Strauss: A Concert of Nineteenth-Century German Lieder (performance)

#### From Schubert to Strauss: A Concert of (Mostly) Nineteenth-Century German Lieder

Erica Meltzer '03, *Music and French and Fay Galbavy '03, Music and German Studies*

ADVISOR: Andrea Matthews, *Music*

The nineteenth century was the golden age of the German Art Song (Lied). Composers such as Franz Schubert, Robert Schumann, Felix Mendelssohn, and Richard Strauss, transformed it from a

minor musical genre, considered far inferior to opera, into a major artistic and creative endeavor in its own right. The works being presented in this concert draw primarily from the German romantic and postromantic song repertoire, although we will include several of Mozart's songs. We will then present some of Schubert's most famous works, ranging from the early compositions of "Heidenröslein" and "Gretchen am Spinnrade," to the longer "Der Hirt auf dem Felsen," which was composed the year he died and published posthumously. Other composers whose works we will perform include two of the most famous "couples" of the nineteenth-century musical world: Robert Schumann and his wife Clara (Wieck) Schumann, and siblings Felix and Fanny (Hensel) Mendelssohn. In addition, postromantic works such as Strauss's "Zueignung" and "Morgen" will show the evolution of the genre at the end of the century. The music will be accompanied by a discussion of some of the poetry to which this music is set, as well as the development and major influences of each of the composers whose songs we presented.

### Multiplicity in Mixed Media (exhibition)

#### Multiplicity in Mixed Media

Marjorie Frankel '03, *Astrophysics*, Wileen Kao '03, *Economics*, Leah K. Solk '03, *Economics and Studio Art*, and Selena Tang '03, *Studio Art*

ADVISOR: Phyllis McGibbon, *Art*

An early means of duplication, traditional printmaking has grown tremendously as an art form. This exhibition will present recent works by students conducting independent studies in printmaking and mixed media. These students have bridged traditional print methods with modern digital print methods and other media.

3:00 – 4:10

**About Wellesley****FirstClass Community vs. Wellesley Community: What's the Difference? (panel)****Actual Reality: A Virtual Voyage into Wellesley Community**

Nicole M. Deterding '03, *Sociology*  
 ADVISOR: Anastasia Karakasidou,  
*Anthropology*

Community Conference is a part of life at Wellesley for many of its students; at the very least, nearly everyone has an opinion about Community's existence. Over the course of a semester, I was interested in understanding the motivations of frequent Community posters and their experiences with negotiating what I perceived as a divide between online Community and the broader Wellesley community. Conducting participant observations and interviews throughout the fall of 2002, I tried to more thoroughly understand the nature of Community for a course in ethnographic writing and methods. Issues of the construction of online identity, race and online communication, and the nature of community were at the forefront of my research. Some of the ethical and theoretical issues that I dealt with in writing about Wellesley will also be explored.

**Uptown Girls Go Downtown: A Study of a Wellesley College Residence Hall**

Katherine Fraga '03, *Anthropology*  
 ADVISOR: Anastasia Karakasidou,  
*Anthropology*

Before Wellesley College students ever enter a classroom they meet in the hallways of the residence halls. The vast majority of Wellesley women live in on-campus housing, making the activities in dormitories some of the most fundamental elements of the Wellesley experience. In the fall of 2002, I endeavored to study the lives of Wellesley women as they behave "in the off hours," through participant-observation and interview. Key elements of my research include the effects of room location on interpersonal relationships, the

creation of a common history among hall mates, and the complexity of the political negotiation of multiple relationships. I chose to study my own hall, raising issues of an ethnographer's role in the production of ethnographic knowledge, as well as the influence of personal relationships on the quality of data collected.

**Analysis of Literature and the Arts****Literature and Life (paper session)****E.M. Forster's Nature: An Evolution Outside of Social Class**

Allison Newman '03, *English and French*  
 ADVISOR: Margery Sabin, *English*

E.M. Forster's interest in the constraints of social class drew him to represent the realm of nature as a space of liberation. Forster's versions of nature in his novels and short stories contain suggestions of the mythical, classical, and exotic, with settings in Italy, Greece, and England. Differences between Forster's early and later fiction and, again, between the work he published during his lifetime and work published posthumously show the freedom he associated with nature, evolving in his imagination from a socially unconventional marriage in *A Room with a View*, to the freedom of the hero in Maurice to love another man of a lower social class. The different versions of nature presented in the course of Forster's career tellingly reflect the author's evolution in response to the changing social realities of the era and gradual acceptance of his own inner nature.

**The Style of Late Henry James: The Process of Vision in *The Ambassadors***

Honor Costello '03, *English*  
 ADVISOR: Margery Sabin, *English*

Critics have long disagreed on whether Henry James's late novels were his best or if they were the work of a master who had gone too far. F. R. Leavis even declared *The Ambassadors* to be "not only not one of his great books, but to be a bad one." But James believed it to be one of his best

works. In his critical writing, James stated that "a novel is in its broadest definition a personal, a direct impression of life." James seems to have had this definition in mind while writing *The Ambassadors*. We see the events of the novel through the eyes of the hero, Lewis Lambert Strether and it is through his impressions that James shows the growth of consciousness. As James explains "if experience consists of impressions, it may be said that impressions are experience."

**The Politics of Poetry: The Work of Pablo Neruda**

Alexis Guild '03, *Comparative Literature*  
 ADVISOR: Marjorie Agosín, *Spanish*

Poetry is one of the most expressive forms of literature. Through poetic verse, the poet is able to reveal his or her most intimate feelings. Although poetry has always acted as a forum for both political and social activism, this role gained new importance in the volatile era of the twentieth century. Amongst the poets at the forefront of this political movement was Pablo Neruda of Chile. He strove to awaken the social consciousness of others by infusing his poetry with examples of injustice both in his native country of Chile and around the world, transcending both cultural and social boundaries. As one critic wrote, he was "un rebelde positivo", a positive rebel. He was, in all respects, a poet of the people. The presentation will be conducted in English, with a reading of one of Neruda's poems in Spanish and its English transliteration.

**Sylvia Plath: Power and the Poetic Voice**

Kamala Nair '03, *English*  
 ADVISOR: James Noggle, *English*

The blood-jet is poetry, there is no stopping it. For Sylvia Plath, life and art were inextricably linked. During her life, she contended with various powers, and in this contention her poetry and prose find their most eloquent expression. In particular, she examines the power of social convention, of patriarchy, of hospitals and institutions, and of the state (in her controversial "Holocaust" poems). Her

work represents a resistance to and a struggle against these forces that plagued her consciousness. Ultimately, Plath's internal battles led to her death in 1963, but her work remains a testament to the triumph of art.

### Economic Issues

#### Economic Analyses of American Policies (paper session)

##### Are Professional Basketball Players Overpaid?

Andrea Bell '03, *Economics*  
ADVISOR: Karl Case, *Economics*

Is Michael Jordan worth \$30 million a season? More to the point, is Mark Madsen, a player who averages 2.4 points in 10 minutes, worth \$800,000 a season? Fans and team owners consistently grumble about the rapid increase in salaries over the years. Yet I will argue that at least some athletes are underpaid. I will present the results of an economic analysis to determine whether players in the National Basketball Association are overpaid. Using my calculations of a player's marginal revenue product, I will determine whether a player adds more to team revenue than he is paid in salary. I will incorporate changes in the labor agreements in order to determine how those changes affect salary, in particular whether certain types of players are underpaid while others are overpaid.

##### How the West Has Won: Regional and Industrial Inversion in U.S. Patent Activity

Amy Brown '03, *Economics*  
ADVISOR: Daniel K.N. Johnson, *Economics*

Using patents as an indicator of invention, we explain the spatial distribution of technological creativity in the United States between 1963 and 1999. Borrowing a technique from empirical international trade analysis, we use constant market share analysis to decompose each state's patenting into components attributable to the national trend, growth of creative industries, growth of consuming sectors, and sectoral shifts. Each component is explained using socioeconomic variables

(e.g. population, education, income, and research spending). Tests confirm that population growth creates more patenting activity and that more populous, higher-income states are better able to follow the national trend. Surprisingly, low-income states are more agile in abandoning stagnating sectors, and federal research grants limit a state's ability to keep up with the national trend, perhaps fostering lock-in to initial sectors. (Research supported by a NSF-AIRE grant)

##### Should We Tax Internet Sales?: A Cutting Edge Issue for Public Policy-Makers

Karyn Long '03, *Political Science and Economics*  
ADVISOR: Alan Schechter, *Political Science*

With the rise of the Internet as a marketplace, we now spend billions of dollars each year buying items from sites like Amazon.com or Gap.com. But unless the business has a physical presence in the state where the buyer lives, the state cannot charge a sales tax on the transaction. States fear losing significant amounts of revenue and "brick and mortar" stores fear that Internet companies have an unfair advantage. Internet companies worry that figuring out the right sales tax to charge would be a significant burden and that they could lose a large percentage of their customers. Both state and federal governments have been studying this issue after the federal government placed a moratorium on Internet taxes. I analyze in this project the actions our government has taken to address this issue, and I consider the future of an Internet sales tax, including models for such a tax.

### Gender and Sexuality

#### On the Edge: The Consequences of Latina Female Independence (paper session)

##### Death and Gender: The Disappeared Women of Juarez – A Study of Cultural and Political Responses

Sarita Frattaroli '05, *Peace and Justice Studies and Economics*  
ADVISOR: Marjorie Agosin, *Spanish*

Since 1994, over 300 young women have disappeared or been found dead on the U.S.-Mexican border. The victims all seem to fit a profile. Young, slim, with long dark hair, they worked at the maquiladoras - American-owned border factories with deplorable labor conditions. Female maquiladora workers are employed and becoming economically independent as unemployment for men, the traditional breadwinners, remains high in Juarez. Amid these tensions, who is systematically killing, raping, torturing, and mutilating these young women and girls? The drug dealers, misogynists, the police, the sons of Mexico's rich, a cult group? The victims' families have clear suspicions, but no one has answers. Police continue to arrest suspects, but the violence persists. This presentation explores the enigma of Juarez, the constant grief of the families, as well as the complicity of the authorities and bystanders. I will also study the art, literature, and activism responding to this violence.

##### Forward Thinking and the Fear of Feminism: The Resisted Evolution of Women in Spain

Alison D. Carberry '03, *Spanish*  
ADVISOR: Elena Gascón-Vera, *Spanish*

Film offers one version of the developing role of women in contemporary Spanish society. Within this "evolution" there are two opposing tendencies: One group of women strives for equality while another seems to resist it. I will discuss various social and political ideologies held by Spanish women—from those who supported the fascist regime to those who suffered under it, from those who continue the struggle for equality today to those who continue to deny it. Do Spanish women suffer from a "fear of feminism" due to the anachronistic ideals that Franco asked them to achieve? Were a woman's intimate relationships - with her family and friends - weakened by Franco's powerful regime? By examining the portrayal of women in film, I will illustrate the development of the female situation in Spain and question whether films accurately do mirror contemporary Spanish society.

### Reproduction: A Right of the Wealthy

*Alina S. Ball '03, Mathematics and Spanish*

ADVISOR: *Kenia Halleck, Spanish*

In 1995 at the Fourth World Conference on Women, Beijing, it was decided that "Women have the right to the enjoyment of the highest attainable standard of physical and mental health. The enjoyment of this right is vital to their life and well-being and their ability to participate in all areas of public and private life." However, the implementation of reproductive rights as an aspect of human rights is particularly difficult in Latin America.

Reproductive rights encompass the right of all individuals to have the education and means to decide freely and responsibly the number and spacing of their children void of discrimination, coercion, and violence. My presentation explores the methodologies, successes, and disappointments of feminist organizations working in Latin America with marginalized communities as they address issues of reproductive rights. Specifically focused on cases in Nicaragua and Venezuela, the presentation will be a critical examination of the structural conditions which shape women's sexual and reproductive rights. (Research supported by the Office of the Dean of the College and Office of Equal Opportunity)

### Science and Technology

#### From Molecules to Cells: Lab Research at Wellesley (poster session)

##### Preparation of a Nicotinamide Nucleoside Analog via Enzymatic Ribosidation of 1,2,4-triazole

*Hong-Ru Chen '03, Biological Chemistry*  
ADVISOR: *David R. Haines, Chemistry*

The synthesis of one type of anticancer drug, nucleoside analogs, is the focus of this research. A critical structural component of nucleoside analogs is the attachment of a ribose group at a specific nitrogen in the base group. Since direct chemical approaches were not successful, an enzymatic method has been used in

the N-4 ribosidation of 1,2,4-triazole (**1**). Spectral data showed that NADase (nicotinamide adenine dinucleotide nucleosidase) was successful in replacing the nicotinamide on b-NAD with 1,2,4-triazole, substituted at either the N1 or N4 position. To produce the desired compound (**2**), the N1 and N4-ADP-ribosidated-1,2,4-triazole mixture was treated with phosphodiesterase I and 5'-nucleotidase. Using NADase again, the ribosidation of another base, N-1-acetamide-1,2,4-triazole (**3**), was attempted but unsuccessful. A different method was used to synthesize the novel nicotinamide nucleoside analog (**4**), via the acetamidation of the N-4 ribosidated-1,2,4-triazole (**2**). (Research supported by Staley's Fund for Cancer Research)

##### Preparation and Characterization of New Drugs against Tuberculosis: An Old Enemy

*Katy Silverstein '05, Chemistry*  
ADVISOR: *Michael J. Hearn, Chemistry*

Though once thought to have been wiped out, the white plague, tuberculosis, has reemerged as a modern medical concern. Today's strains of the disease are more highly virulent as well as resistant to the drugs that were once sufficient to defeat it. As it has been 40 years since the last major breakthrough in drug development for TB, it is now imperative to synthesize new, stronger medicines to attack the recent mutations of the life threatening bacterium.

Isoxyl, a thiourea, and para-aminosalicylic acid (PAS) are two drugs that have proven effective at fighting TB in the past, but have neither the strength nor the stability to fight the modern drug resistant TB strains. PAS, for example, will break down into a toxic compound when exposed to heat, thus making it poorly suited to cure patients in warm tropical climates where TB is currently most rampant. These proven drugs, however, can be used as potential leads for new ones. We have used the methods of synthetic organic chemistry to functionalize phenyl PAS, a stabler and more lipophilic version of PAS, in order to seek out a more potent cure for these newly emerging drug resistant

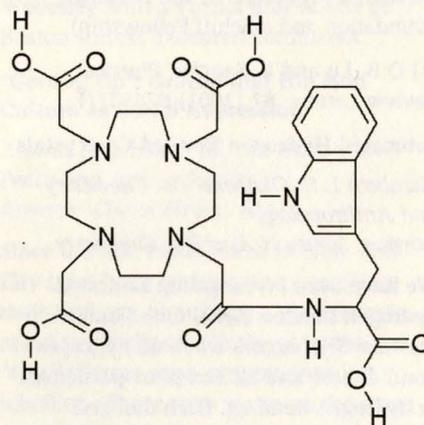
strains of tuberculosis. (Research supported by NSF AIRE Sophomore Early Research Student Stipend)

##### Special Agents: The Theory and Synthesis of an Enzymatically Activated, Caged Gadolinium Contrast Agent

*Lauren A. Cadish '03, Comparative Literature*

ADVISOR: *Nancy H. Kolodny, Chemistry*

The complexity, diversity, and widespread use of gadolinium-containing contrast agents in magnetic resonance imaging (MRI) belie the relatively recent emergence of this family of molecules to the scientific scene. In the 15 years since the FDA's approval of Gd-DTPA, great progress has been made, including the development of similar agents and their derivatives. At this time 30% of all clinical MRI tests use such contrast agents. We will discuss the nature and synthesis of a contrast agent that combines the amino acid tryptophan with Gd-DOTA, to create what we believe will be an enzymatically-activated compound (below).



Such a complex will be capable of both weak and strong relaxivity conformations, and should provide great insight into serotonin production when imaging experiments are conducted *in vivo* on lobsters using a recently acquired imaging accessory to the college's 400 MHz NMR spectrometer. (Research supported by the Marie and John Zimmerman Foundation, NSF-MRI and the Howard Hughes Medical Institute)

### The Radiation Chemistry of CF<sub>2</sub>Cl<sub>2</sub>: Implications for the Ozone Hole?

Nozomi Nakayama '03, Chemistry  
 ADVISOR: Christopher Arumainayagam, Chemistry

We have studied the low-energy electron induced reactions of dichlorodifluoromethane (CF<sub>2</sub>Cl<sub>2</sub>), commonly known as CFC-12, because of a newly proposed hypothesis [1] for the formation of the ozone hole. Our experimental procedure involves low-energy (10 – 250 eV) electron irradiation of nanoscale thin films (~ 10 Å thickness) of CF<sub>2</sub>Cl<sub>2</sub> grown at 100 K on a molybdenum single crystal in a ultrahigh vacuum chamber (p ~ 1 x 10<sup>-10</sup> Torr). Post-irradiation temperature programmed desorption experiments were used to identify C<sub>2</sub>F<sub>4</sub>Cl<sub>2</sub>, C<sub>2</sub>F<sub>3</sub>Cl<sub>3</sub>, C<sub>2</sub>F<sub>2</sub>Cl<sub>4</sub>, C<sub>2</sub>F<sub>3</sub>Cl, and C<sub>2</sub>F<sub>2</sub>Cl<sub>2</sub> as radiolysis products of CF<sub>2</sub>Cl<sub>2</sub>. The radiolysis product yield as a function of electron energy, electron fluence, and film thickness was investigated to probe the electron-induced reaction mechanism(s). (Research supported by the Beckman Foundation and a Schiff Fellowship)

[1] Q.B. Lu and L. Sanche, Physical Review Letters. **87** (2001) 078501/1.

### Saturated Hydrogen Bonded Co-crystals

Elizabeth L.N. Okasako '03, Chemistry and Anthropology  
 ADVISOR: James H. Loehlin, Chemistry

We have been investigating saturated hydrogen bonded (SHB) diol-diamine co-crystals. SHB occurs when all hydrogen bond donors and all acceptors participate in hydrogen bonding. Each diol and diamine may form six hydrogen bonds. Co-crystals of 1,8-Octanediol · p-Phenylenediamine and 1,12-Dodecanediol · p-Phenylenediamine were grown from solutions of 25% ethanol and 75% toluene. Crystals were examined using x-ray diffraction and the cell dimensions obtained were: 8.14, 4.80, and 18.0 angstroms, and 8.22, 5.05, and 22.1 angstroms, respectively. Detailed crystallographic investigations are underway and the results will be reported. Additionally, we have tried to grow a different class of SHB crystals containing morpholinium cations, with two hydrogen bond donors

on the nitrogen atom and two hydrogen bond acceptors on the oxygen atom. These ions may form hydrogen bond chains, with suitable anions to balance the charges. (Research Supported by a NSF REU Grant)

### Effects of a Continuous Dose of Beta-Adrenergic Agents on Cardiac Myocytes *in vivo*

Elizabeth Bartley '03, Biological Sciences  
 ADVISOR: Dennis Smith, Biological Sciences

The role of the beta-adrenergic system and cardiac myocyte apoptosis has become a topic of interest. Previous studies *in vitro* have found that exposure of cardiac myocytes to norepinephrine, a wide-range adrenergic agonist, increases the number of apoptotic cells. b-adrenergic agonists have been found to mimic the effects of norepinephrine, while the wide-range b-adrenergic antagonist propranolol countered its effects. The current project focused on the *in vivo* effects of continuous doses of isoproterenol, a wide-range beta agonist, and propranolol. The drugs were administered subcutaneously to rats, using osmotic pumps, for 24 or 48 hours and the cardiac tissue was studied through light and electron microscopy. While the myocytes treated with propranolol appeared to be healthy, evidence of apoptosis in other cardiac cells was present. Tissue treated with isoproterenol exhibited strong evidence of cardiac myocyte apoptosis. (Supported by the Howard Hughes Medical Institute and Brachman-Hoffman Fellowship)

### Slow Down You Move Too Fast: An Analysis of Whale-Watch Vessel Speed within Stellwagen Bank National Marine Sanctuary

Sara Baldauf-Wagner '03, Environmental Studies  
 ADVISOR: Marcy Thomas, Biological Sciences

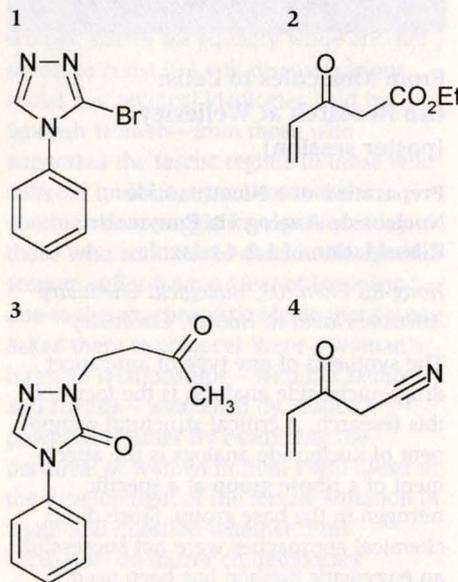
Imagine a ship pulling into harbor with a 60-foot whale folded over its bow. It happens. Ship-strikes take a significant toll on whale populations annually. This summer, as part of a research team, I covertly monitored whale-watching boats within Stellwagen Bank. Because the area supports numerous species of

whales, the combination of high boat traffic and dense whale populations has prompted concern over the potential for boat-strikes. Over the past 3 months, I have performed spatial analyses of vessel speed and proximity to whales in sanctuary waters. The data indicate that many vessels exceed the speed limit stipulated by whale watching guidelines, thus increasing the likelihood of ship-strikes. (Research supported by the International Wildlife Coalition and the National Oceanic and Atmospheric Administration)

### Annulating Agents for Construction of Bicyclic 1,2,4-triazole Systems

Paula Freedman '03, Neuroscience and Classical Civilizations  
 ADVISOR: David Haines, Chemistry

Our previous attempts to form a dihydro-triazolopyridine through reaction of 4-substituted-3-bromo-1,2,4-triazoles (**1**) with ethyl-3-oxo-4-pentenoate (**2**) have shown that a triazolone similar to structure **3** was formed as the major product, as identified by mass spectrometry. Because the oxygen forming the carbonyl on the triazolone is assumed to come from an oxygen of the ester in the adduct, the addition of an adduct without a potentially nucleophilic functional group at this position has been examined. One such adduct is compound **4**. The synthesis of **4** and the reaction of such adducts with **1** will be discussed.



## Reflections on Science (paper session)

### “A Beardless Set of Nonblushers”: Nineteenth-Century Women Physicians

Merritt McLean Evans '03, *History*  
ADVISOR: Elizabeth R. Varon, *History*

The number of women physicians in the United States increased dramatically in the second half of the nineteenth century, beginning with the 1849 graduation of Elizabeth Blackwell from Geneva Medical College and continuing through the establishment of the Woman's Medical College of Pennsylvania, the first regular medical school for women in the world, as well as a handful of other regular and sectarian institutions dedicated to the education of women doctors. By 1900, female physicians comprised between four and five percent of the medical profession. My senior thesis examines the experience of these women physicians by focusing on the lives of ten doctors in Richmond and Philadelphia during the years 1850 through 1900. Through the documents they left behind, my thesis uncovers what it meant to be a woman doctor during this time of enormous change and conflict on the national, professional, and personal level. (Research supported by a Schiff Fellowship)

### Geek Culture: The Making of a Female Computer Scientist

Veera Pollard '03, *Computer Science*  
ADVISOR: Scott Anderson, *Computer Science*

*Ghostwriter* is a program that I am in the preliminary stages of developing that teaches girls (aged 8-10) how to be makers rather than simply users of software. It achieves this through teaching them the fundamentals of programming and then allowing them to design a “choose-your-own-adventure” narrative for another user. The inspiration to do this project came from looking at the statistics of women in computer science graduate programs. In spite of the fact that computer science is a relatively young field without a long history of male innovators as in math or physics, there is a dearth of women in this area of science, both in academia and in industry. My

project is an attempt to understand why girls and women are not pursuing higher learning in computer science and to try to remedy the problem by making educational software that would target girls' interests and give them a feeling for construction over consumption at a young age. (Research supported by a CWS summer stipend)

## Probing Brain Structure and Function (panel)

### Probing Brain Structures and Functions

JaeYoung You '05, Brittany Yerby '05,  
Yolanda Huang '03, *Neuroscience*, Rebecca  
Yang '05, and Lauren Brownlee '05,  
*Classical Studies and Africana Studies*  
ADVISOR: Joanne Berger-Sweeney,  
*Biological Sciences* and Nancy Kolodny,  
*Chemistry*

The mammalian brain has complex structures that parallel their complex functions. In this presentation, we will highlight some of the exciting new findings that we have obtained using two sophisticated techniques to probe brain structures and functions. First, we will discuss magnetic resonance imaging (MRI) that allows us to study the brain structure of a live mouse as well as to examine how the mouse brain responds to the invasion of malignant skin cancer cells (melanoma). Second, we will present refined behavioral techniques that allow us to track the functional development from simple reflexes to complex cognitive tasks in normal and genetically-altered mice that mimic the human disease of Rett Syndrome. These studies on developing and testing animal models of human disease conditions will shed light on the pathophysiology in the mammalian brain. (Research supported by the Arnold and Mabel Beckman and National Science Foundation)

## Self and Identity

### Art, Self, and Society (paper session)

#### Trinity Church

Lillian Fish '03, *Art History*  
ADVISOR: Peter Fergusson, *Art*

Standing proudly in the center of Back Bay, Trinity Church has long been a popular Boston tourist destination. The American Institute of Architects consistently votes Trinity, the masterpiece of legendary architect H.H. Richardson, to its “best-of” lists. However, many local residents pass by this magnificent building with scarcely a glance. The facade has become such a recognizable image, adorning everything from phonebooks to postcards, that it can sometimes fade into the familiar backdrop of the city. Yet, 126 years after the construction of Trinity, the church has the timeless ability to inspire those who take the time to look and explore. This presentation will bring the architecture and spirit of Trinity Church to Wellesley with a virtual tour of one of Boston's most treasured landmarks.

#### “Getting Up”: Graffiti and Hip Hop Culture as Social Expression

Ariana Hellerman '03, *Art History and  
Peace and Justice Studies*  
ADVISOR: Cheryl Finley, *Art*

Since the late 1960s, teens in New York City have been “getting up” – marking their territory on subways, playgrounds, and neighborhoods. In the past, their “Graffiti” was often synonymous with rebellion. Those who wrote on the street were mainly black and Latino youths who felt invisible within the larger society due to race and class discrimination. They used permanent markers to scrawl their names around the city as a means of gaining notoriety. Yet their critics considered them “hoodlums” and did not understand that graffiti was a way of finding a voice, not just an attempt to damage property. Since its heyday in the mid-1980s, which produced the renowned artists Keith Haring and Jean-Michel Basquiat, graffiti has spread across the United States and internationally. Today, graffiti is not only a form of visual expres-

sion; it is part of a larger culture that combines music, dance, and social action to give marginalized communities means to be heard.

### What Color Is Your Personality: A Study of Individual Differences in Aesthetic Orientation

*Sonya Lai '03, Psychology and Economics*  
ADVISOR: *Jonathan Cheek, Psychology*

Since the beginnings of recorded thought, the great scholars – Plato, Socrates – have wrestled with the idea of art, its implications, and its reflections on society and human behavior. Since style is defined as “the constant form in the art of an individual or a group” (Schapiro), art may seek some qualitative insight from the field of personality psychology, whose central focus is the phenomenon of individual differences. The present research involved a sample of 90 Wellesley College students who completed measures of aesthetic preference (Dewey Color Test, Barron-Welsh Art Scale, and a newly constructed Artistic Preference Scale) and personality (Highly Sensitive Person Scale, Work Preference Inventory, and Big Five Inventory) in an empirical investigation of individual differences in aesthetic orientation.

### Leni Riefenstahl, Artist or Propagandist

*Hannah Richardson '03, Psychology*  
ADVISOR: *Jonathan Cheek, Psychology*

Leni Riefenstahl (1902 - ) is one of the most controversial figures of the Nazi period in Germany. A brilliant filmmaker, Riefenstahl was hired by Adolf Hitler to make “Triumph of the Will,” a film that documented the 1934 Nazi rally in Nuremberg. Riefenstahl claims that when she made “Triumph” and other propaganda films, she was completely ignorant of Germany’s political climate. She refuses to take responsibility for her role in the Nazi party by insisting she was an artist, not a propagandist, even though most people would argue that it is essential for an artist to be aware of the impact her work will have. Using frameworks outlined by experts in the field of psychobiography, I have researched aspects of Riefenstahl’s life story that are concealed within her writings and films,

in an attempt to analyze her identity from a psychological point of view.

## Social Institutions and Processes

### This Is Not Judge Judy (panel)

#### Law on the Books and Law in Action: Case Studies of Real World Legal Disputes

*Amber Gorman '05, Political Science, Meryl Rosen '03, English, Marissa Mounds '04, Latin American Studies, Erin E. Richardson '03, English, and Fatima Mahmud '05, Political Science*  
ADVISOR: *Lori Johnson, Political Science*

The American legal system is commonly portrayed in books, movies, and television. We have all seen the dramatic courtroom scene where justice is advocated by an eloquent and ambitious attorney. In the academic sphere, the law is an intellectual enterprise whereby close analyses of cases and texts provide answers to legal disputes. But how does the law manifest itself for the average citizen? In an attempt to bridge this gap between law on the books and law in action, and to discern larger patterns about the character of law in the United States, we will lead you through various case studies of real world legal disputes involving First Amendment issues, shareholder rights, landlord and tenant conflicts, and waivers for damages.

### Women and Political Issues (paper session)

#### The Struggle over Desegregation of the Public Schools in Prince Edward County, Virginia: The Untold Stories of Women’s Contributions

*Susan McGregor Harvey '03, History*  
ADVISOR: *Elizabeth R. Varon, History*

Following the 1954 landmark decision in *Brown v. Board of Education*, there were many battles fought over the integration of the public schools. No battle was longer or ultimately more damaging than the battle fought in Prince Edward County, Virginia. In the county seat of Farmville, Black high school students went on strike in 1951 to protest poor conditions in their segregated school. This strike ultimately led to one of

the five cases included in *Brown*. Due to the efforts of many people governing Virginia and Prince Edward, the public schools in this county were closed from 1959 to 1964. A private school was established for the White students, but nothing was provided for the Black students, leaving over 1700 children without formal education during these years. The history of Prince Edward has neglected the contributions made by the women in this community. I am honored to tell their stories. (Research supported by a Jerome Schiff Fellowship and a Henry Schwarz Fellowship)

#### From the Legislature to the Courts: The Evolution of Abortion Reform in the United States

*Arielle V. Simon '03, Political Science*  
ADVISOR: *Alan Schechter, Political Science*

The movement to reform restrictive abortion laws began locally, as activists attempted to pass reform and repeal legislation in a handful of states, relying largely on arguments regarding the public health crisis that had arisen as the result of illegal abortions. However, as feminist groups gained support and momentum, the concept of abortion as a woman’s *right* emerged. Because many legislatures were resistant to change, advocates abandoned the strategy of seeking policy change through the legislatures and catapulted the issue into the courts, arguing that by denying access to abortion, states were abridging women’s constitutional rights. The momentous ruling of *Roe v. Wade* in 1973 established a strict scrutiny standard for statutes limiting abortion access. However, the constitutional right to abortion was subsequently eroded most notably by the 1992 *Planned Parenthood v. Casey* decision which established that states could pass restrictive laws as long as they did not pose an ‘undue burden’ to a woman’s access to abortion.



### Women Who Ran in 2002: Does the Media Continue to Frame Female Candidates Differently?

*Sarah A. Treul '03, Political Science and Psychology*

ADVISOR: *Jeff Gulati, Political Science*

The year 1992 saw unprecedented numbers of women enter the U.S. Senate, earning the year the title "Year of the Woman." Ten years later, fewer females were elected to the Senate than in 1992 and even fewer women decided to run. The present study was designed to analyze how the media may be affecting female politicians' chances at being elected to the Senate. This study looks specifically at fourteen Senate races from the year 2002 to assess three questions: 1) Does the media cover female candidates less frequently, and is the coverage that does exist less favorable? 2) Is the press more likely to allow male candidates to determine which issues will be covered? and 3) Does the media attribute less favorable personality traits to female candidates? Data were collected from a content analysis of the most widely circulated newspaper in each of the states studied and the candidates' campaign Web sites.

## The Arts

### Photo Class Arts 308 (exhibition)

4 x 5 x 11

*Bethany Cooper '05, Studio Art, Sarah Dodwell '03, Studio Art, Kate Erickson '05, English and Cinema and Media Studies, Erin Herzeelle '03, Studio Art and Education, Laurel Martin-Harris '03, Studio Art and Neuroscience, Miranda Paris '03, English, Julie Raymond '03, English, Keren A. Rosenfeld '03, Studio Art and International Relations, Clare Seabright '05, Studio Art and History, Jennifer Starkey '04, Studio Art, and Sarah Stone '04, Art History*  
ADVISOR: *Judith Black, Art*

Our title indicates the initial impetus for our inquiry. We are 11 students who worked together last semester in ARTS 208, Intermediate Photography. This semester, we are exploring for the first time the 4x5 view camera, a slow moving

piece of equipment and a time consuming process. Our exhibit stems from a desire to use these numbers as the kernel of our projects. We are allowing ourselves the freedom to use them in multiple ways and with varying questions and definitions. 4x5 inches per print? 4x5 size film? 11 images from said film? A 4x5x11 foot space where the images are made? A grid of 55 photos from a 35mm camera that are taken within a four-mile radius of the campus? The inquiry is the message.

### Exploration of Works for Two Pianos (performance)

#### Music for Two Pianos

*Monica Link '03, Philosophy and Lydia Lee '05, Political Science*

ADVISOR: *Isabelle Plaster, Music*

The piano is an instrument that is often included in chamber music groups but seldom played in tandem with another piano. To explore the richness and variety that comes with having two pianos in dialogue, we will perform contrasting two-piano works including Mozart's *Sonata in D K.448* and a piece from Debussy's *En Blanc et Noir* suite.

### Original Electronic Music (performance)

#### Retrograde Symmetry? Metric Modulation? I-Ching?: Original Electronic Music

*Jennifer Carlile '03, Computer Science and Media Arts and Sciences*

ADVISOR: *Martin Brody, Music*

A knock, a crash, talking, trumpet sounding, frog's croaking, steam whistle, glass breaking... To most people, these sounds in immediate juxtaposition will seem chaotic, perhaps even disturbing. But when I heard the first sequence of John Cage's *Williams Mix*, these seemingly unconnected sounds enabled me to see how to connect two divergent parts of my life – my love of music and my fascination with math and science. After hearing my first piece by Cage, I immediately dove into the genre of electronic and experimental music, listening to whatever I could get my hands on, reading lectures by artists and musicians, and creating my own pieces in this medium.

I have continued composing throughout the year, and I would like to present my work to the Wellesley Community. I will also feature clips from composers who have had an impact on my work, including John Cage, Elliott Carter, and Anton Webern.

4:30 – 5:40

**Analysis of Literature and the Arts****Icons of Contemporary Culture  
(paper session)****The Short Fiction of Raymond Carver***Anne Mostue '03, English*  
ADVISOR: *Timothy Peltason, English*

The great American writer Raymond Carver published short stories and poetry from 1976 to 1988. His powerful “minimalist” technique reveals his admiration of Anton Chekhov and Ernest Hemingway. Reflecting on the disappointments of American life, Carver’s style is strikingly clear and honest, his voice ranging from deadpan humor to eerie bleakness. In this independent study, I explored several aspects of Carver’s work, including the silences that often occur as muted climaxes or awakenings at the end of his stories, when his character(s) reach a silent, sometimes open-ended conclusion to the difficulties that lie behind and ahead of them.

**“Tangled Up in You”: A Trip through the Love Songs of the Poet Bob Dylan***Maeve Cunningham '03, English*  
ADVISOR: *William Cain, English*

Bob Dylan: Robert Zimmerman, Rock Star, Political Protestor, Born Again Christian, Musical Prophet, Social Icon, Enigma, Poet. However one defines him, Dylan’s inimitable construction of words positions him among all great American poets. He is a poet of politics, social inequality, religion, but largely, a poet of love. Dylan is unparalleled in his poetic articulation of the profound complexities of the human heart. This presentation will explore these complexities across six main themes within Dylan’s vast collection of love songs from *The Freewheelin’ Bob Dylan* (1963) to *Street Legal* (1978). The presentation will include the following themes, sample songs being: the *adoration* of “Sara,” the *detestation* of “Idiot Wind,” the *desire* of “I Want You,” the *despair* of

“Simple Twist of Fate,” the *autonomy* of “Lily Rosemary and the Jack of Hearts,” and the *addiction* of “Isis.”

**Food in Literature – Food as a Vehicle for Expressing Intimacy and Nostalgia***Marissa A. Tinsley '03, Japanese*  
ADVISOR: *Carolyn Morley, Japanese*

Food is necessary for physical survival, but its role in emotional sustenance is often overlooked. Yoshimoto Banana, the popular Japanese author, often uses food to define characters, symbolize the family, hint at the supernatural, or act as a mode of self-expression. By analyzing her works available in English, as well translating the short story *Hinagiku no Jinsei* (A Daisy’s Life), I illustrate the many roles that food plays in contemporary Japanese literature. Yoshimoto’s writing is often compared to *manga*, Japanese comics, and her heroines to the *shōjo*, an adolescent girl with no responsibilities and a fluctuating identity. I will be referring to *manga* and animated films in my analysis.

**Music, Literature, and Fashion  
(paper session)****Woman, Writer, Critic: Jane Austen’s Authorship and Late Eighteenth-Century English Society***Meryl Rosen '03, English*  
ADVISOR: *Yoon Sun Lee, English*

In late eighteenth-century England, women were depended upon to accept their roles as domestic figureheads by fulfilling their obligations as wives and mothers. The female sphere was decidedly fixed in substance and scope, and pressing beyond its borders would not only jeopardize definitions of sexual difference but also threaten the social structure on which matters of ideology, politics, wealth, and property rested. By writing professionally, woman writers risked an internal confusion over their place in a disapproving world and a struggle with self-acceptance amidst a conservative social climate. Still, a wealth of woman’s writing emerged –

most noticeably in the rich novels of Jane Austen. Often overlooked in Austen’s fiction is its subtle yet biting social critique, criticism which mirrors the author’s personal conflicts on account of her gender. Thus, the difficult social position of late eighteenth-century English women can be described in greater detail as we delve into Jane Austen’s personal and professional lives – and their fascinating intersection.

**Romain Rolland, George Sand, and the Apprenticeship of the Itinerant Musician: Music as a Pedagogic Entity in the French Formation Novel***Deborah Hayden '03, Latin and French*  
ADVISOR: *Nathalie B. Rogers, French*

For Romain Rolland and George Sand, music is essential to human existence. Thus it is not surprising that the universe of sound plays such a dominant and complex role in their literary works, particularly in Rolland’s *Jean-Christophe* and Sand’s *Consuelo*. An exploration of the relationship between music and the moral and intellectual formation of the individual and of the parallel between physical travel and the interior, spiritual journey of the protagonist in each novel will reveal the extent to which music constitutes a tutelary and pedagogic figure, a metaphor for the idealism of artistic creation, and the ultimate authority for an individual in search of himself across an artistic medium. (Research supported by a Schiff Fellowship)

**A Mirror in the Wardrobe***Kat V. Scoggin '03, Medieval/Renaissance Studies and Psychology*  
ADVISOR: *Lawrence Rosenwald, English*

Fashion as we know it was born in the sixteenth century and in Tudor England it became a living and breathing entity. So immersed in the culture was fashion, that it began to reflect every aspect of that society. From political alliances and tensions to economic investment and instability; from international trade routes



to foreign diplomacy; from national pride to distaste of nation; from social hierarchy to religious and superstitious views; all these things are reflected in the foldings, drapings, assembly, hemlines, style lines, closures, colors, and materials of an individual's garments. Presentation includes an introductory essay, plus the display of re-created sixteenth-century garments from underpinnings to accessories for a member of upper class Tudor England. (Research supported by Pamela Daniels '59 Fellowship and CCI student research grant)

### Change

#### Images of Globalization: Original Research Projects from Sociology 321 (panel)

##### Images of Globalization: Original Research Projects from Sociology 321

*Students from Sociology 321*  
 ADVISOR: Peggy Levitt, *Sociology*

The destruction of the World Trade Center, one of the most potent symbols of global westernization, by Al Qaeda, a transnational terrorist network, revealed more powerfully than any academic study could, how radically the boundaries of social and political life are changing. But terrorism is not the only social process that transcends national boundaries. Transnational social movements are mobilizing cross-border constituencies around issues of global concern such as human rights, the environment, and epidemic disease. Pan-Muslim, Hindu, and evangelical Christian activism suggest the emergence of transnational religiously based civil societies which transcend nation states. And increasing numbers of migrants stay connected to their home countries at the same time that they establish themselves in the countries that receive them. In this session, we present the results of our original research on globalization. These projects were carried out as part of Sociology 321 in which we learned about field research by exploring substantive questions related to this topic.

### Multicultural Research

#### Facing History: Slavery and Internment in the United States (paper session)

##### Music, Art, and Memory: The Japanese American Internment

*Marianne Lopriore DS, American Studies*  
 ADVISOR: Yoshihisa Matsusaka, *History*

On February 19, 1942, President Franklin Delano Roosevelt signed Executive Order #9066 authorizing the eviction of all Japanese and Americans of Japanese ancestry from their homes and businesses on the West coast of the United States. Subsequently, 110,000 people were forced to relocate to government-constructed camps. This action made them the victims of some of the most blatant constitutional and civil rights violations in American history. Following their emancipation at the conclusion of World War II, internment camp survivors chose to remain silent about their captivity for fifty years. Recently, many have broken that silence. The historical significance of the camp generation speaking out after so many decades is examined through the music of Paul Chihara, a survivor of Minidoka Relocation camp. Why has he ended his silence? How has he chosen to commemorate his experience at Minidoka in his music? What does his music mean to us?

##### An Unpaid Debt for Slavery?: The Reparations Debate in the United States 1865-2002

*Leslie Hale Warner '03, Women's Studies*  
 ADVISOR: Judith Rollins, *Africana Studies*

The debate over reparations for slavery is currently in the national and international arenas as it has never been before. In the United States, the enslavement of blacks by whites has left a profound, but unresolved, stain on America's history. Unquestionably, this history of slavery continues to haunt the descendants of enslavers and of those enslaved, families and institutions which have benefited directly and indirectly from slavery, and the nation as a whole.

Some oppose reparations in any form, viewing them as a perpetuation of the deep racial divide which already exists. Others believe that a part of the necessary healing between blacks and whites must be a public apology for slavery and an acknowledgement that a debt is owed. Still others feel that only monetary compensation is appropriate.

This paper explores the salient positions on the reparations question from those articulated immediately after emancipation to those being voiced today. (Research supported by the Multicultural Fund and the Africana Studies Department)

### Science and Technology

#### Studies at the Micro Level (paper session)

##### Genetics and the Fountain of Youth: A Look at the Molecular Regulation of Aging

*Caitlin Conboy '03, Biological Chemistry*  
 ADVISOR: Jeff Sigman, *Chemistry*

Are there any short cuts to prolonging the human life span? What is aging on the molecular level? And can it be regulated? Current theories diverge on this point. While some molecular biologists argue that aging is the result of complex interactions that cannot be regulated directly, others disagree, and they're producing mounting evidence that the regulation of specific genes can have an influence on the life span of model organisms such as yeast and roundworms. Are humans next?

I've had the opportunity to study this contemporary issue through a year-long UROP in Leonard Guarente's lab at MIT, in cooperation with postdoctoral fellow Gil Blander. Our project has been to evaluate the role of several metabolic pathways in the regulation of aging in human fibroblast cells. Specifically, I'll be presenting results that demonstrate correlations between life span and the expression of some Sir2-like proteins and proteins in the insulin signaling pathway.

### The Changing Face of Surveillance: Biometrics and the Right to Privacy

Elizabeth A. Masiello '03, *Computer Science*

ADVISOR: Franklyn Turbak, *Computer Science and Maud Chaplin, Philosophy*

Following the events of September 11, 2001, the use of facial recognition in surveillance as a means of identifying suspected terrorists received increased media attention, especially when deployed at the 2002 Winter Olympics in Salt Lake City. This and other biometrics (such as gait, voice, and iris recognition) are emerging as a controversial means of identifying mobile individuals suspected to be security threats in today's global environment. Opponents of the technology argue that these systems infringe upon individual privacy, while supporters point out that when deployed in public locations, the systems threaten only anonymity. In fact, biometric-enhanced surveillance may serve to construct a modern Panopticon, destroying anonymity altogether. Despite the suggestion by proponents that anonymity and privacy are independent of one another, anonymity is a critical piece of the individual privacy enjoyed in America; if it is destroyed, our current understanding of privacy will be forever changed.

### Spectroscopy of Cr-acetylacetonate Complexes in Sol-Gel Glasses

Amanda Gardner '03, *Chemistry and Computer Science*

ADVISOR: William F. Coleman, *Chemistry*

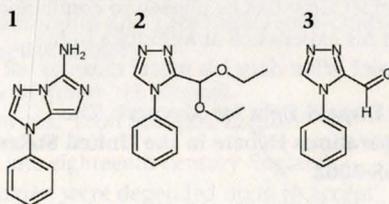
The emission spectra of Cr-acetylacetonate complexes in the solid state and in solution exhibit very broad features in the regions of the spin-forbidden electronic transitions. We have incorporated these complexes into a series of Sol-Gel glasses in an effort to determine whether or not this spectral broadening arises from cooperative interactions through the delocalized pi-bonding system of the ligands. We will describe the preparation of the doped glasses and absorption, emission and excitation spectra of these systems at temperatures between 77 and 300K. A model that is consistent with our observations of line narrowing in these systems will be described.

### Adding Substituents to the C-3 Position of 4-substituted 1,2,4-triazoles

Christine Worrall '03, *Biological Chemistry*  
ADVISOR: David R. Haines, *Chemistry*

Analogues of naturally occurring nucleosides often exhibit anticancer and antiviral properties. Our research focused on completing an adenosine analogue (1) synthesis from 4-phenyl triazole by substituting at the C-3 position. This substitution was attempted using two different methods: activating the triazole ring for nucleophilic substitution via the triazolium ion, and building the triazole ring with a substituent already bound to the C-3 position. In the latter method, we synthesized 3-diethoxymethyl-4-phenyl-1,2,4-triazole (2), hydrolysed the acetal functional group to an aldehyde (3), and attempted replacing the carbonyl oxygen with various nitrogen sources.

Another possibility for substituting at the C-3 position of 4-phenyl-1,2,4-triazole is via the triazolium ion. We studied the properties of several different triazolium salts using NMR spectroscopy and molecular modeling. We also studied the effects on the NMR spectra of varying solvent, concentration, counterion, and triazolium substituents. (Research supported by Staley Fund)



### Interdisciplinary Research Group Studying Adaptation in Bacteria (panel)

#### Characteristics of Heavy Metal Resistant Bacteria Isolated from the Former Henry Woods Paint Factory Site in Wellesley, Massachusetts

Levita Robinson '03, *Biological Sciences*,  
Brenda Kwambana '03, *Biological Sciences*  
and Tina Wang '04, *Sociology*  
ADVISOR: Mary M. Allen, *Biological Sciences*

Heavy metals are mutagenic in animals and bacteria. However, bacteria resistant to heavy metals are often found in heavy metal-contaminated soils. The former Henry Woods Paint Factory site in Wellesley, Massachusetts has been remediated by Haley & Aldrich, Inc. of Boston, Massachusetts because of high chromium (VI) and lead levels. The objective of this research was to isolate and characterize bacteria resistant to heavy metals from this environment and to study their mechanisms of resistance. Dilutions of soil samples were grown in rich medium, and bacteria were isolated and examined by electron and light microscopy to determine their structure and Gram reaction. Antibiotic treatment of the bacteria showed some resistance to a variety of antibiotics. The bacteria were also plated on varying concentrations of heavy metals to determine how growth differed. Most of the isolated bacteria grew at low heavy metal levels, while none survived in media with higher concentrations of heavy metals. (Research supported by Howard Hughes Medical Institute, National Institutes of Health, NSF AIRE and NSF RUI)

#### Acid Shock in the Cyanobacterium *Synechocystis* sp. Strain PCC 6803 and Comparisons of Exponential and Stationary Phase Cultures

Jing Chen '05, *Biological Chemistry* and  
Katherine M. Shea '03, *Biological Sciences*  
ADVISOR: Mary M. Allen, *Biological Sciences*

The goal of this study was to characterize the acid stress response in *Synechocystis* sp. strain PCC 6803 and to compare cultures in the exponential and stationary

phases of growth. Growth studies indicated that log-phase cultures of *Synechocystis* are incapable of growth in environments with a pH less than 6. Cells stressed at pH values greater than 6 had similar growth rates to nonacid stressed cells. However, acid stressed cultures had a lower viability than nonstressed cells. Gel electrophoresis and autoradiography suggested that several proteins were differentially synthesized in response to acid stress: the synthesis of phycocyanin was down-regulated while the synthesis of at least two proteins, 20kDa and 10kDa, was up-regulated. To compare non-stressed exponential and stationary phase cells, the OD750 and the concentration of cells in each culture were measured. Results from these measurements suggested that stationary phase cells are larger than exponentially growing cells. (Research supported by the Arnold and Mabel Beckman Foundation, Jerome A. Schiff Charitable Trust, NSF-AIRE, and NIH)

#### **Cyanophycin and Nitrogen Metabolism in the Cyanobacterium *Synechocystis* sp. Strain PCC 6308**

*Deborah Bauer '03, Neuroscience and Melissa Davis '05*

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

Cyanophycin is a nitrogen storage molecule unique to cyanobacteria. We are interested in the pathways that interrelate cyanophycin and nitrogen metabolism. The effects of various stress conditions, including nitrogen starvation, antibiotic stress, and switching of nitrogen source, on the production of cyanophycin were studied in *Synechocystis* sp. strain PCC 6308. Cells were grown on  $^{14}\text{N}$  nitrate or  $^{14}\text{N}$  ammonium, stressed, then refed with either  $^{15}\text{N}$  nitrate or  $^{15}\text{N}$  ammonium. Cyanophycin was extracted from samples taken between 0 minutes and 40 hours. These extracts were then examined using  $^1\text{H}$  NMR spectroscopy. It was found that different stress conditions caused the cells to use different methods of incorporation of nitrogen into cyanophycin, and that overall cyanophycin levels varied across conditions. (Research sponsored by the Howard Hughes Medical Institute)

#### **Designing an Experiment to Measure Phycocyanin Levels in Cyanobacteria during Nitrogen Starvation**

*Corinne Savides '05, Tam-Linh Nguyen '04, Biological Sciences and Sarah Van Driesche '03, Biological Sciences*  
ADVISOR: *Nancy H. Kolodny, Chemistry and Mary M. Allen, Biological Sciences*

Phycocyanin is a blue photosynthetic protein and nitrogen storage molecule found in cyanobacteria. Cyanobacteria degrade phycocyanin during nitrogen starvation and synthesize it upon nitrogen refeeding. Since phycocyanin absorbs light at 620 nm, visible spectroscopy can be used to measure the amount of phycocyanin in cells. Parameters of cell breakage were determined in order to prepare samples with distinct phycocyanin absorbance. Visible spectroscopy studies showed that phycocyanin regeneration began about 6 hours after refeeding and was complete by about 24 hours. Nitrogen starvation experiments using  $^{14}\text{N}$  and  $^{15}\text{N}$  followed by  $^1\text{H}$  NMR spectroscopy on phycocyanin would yield more precise data on the protein's source of nitrogen than visible spectroscopy can provide. Although phycocyanin is too large for NMR analysis, its chromophore, phycocyanobilin, can be cleaved and purified. Currently, we are preparing to characterize the  $^1\text{H}$  NMR spectrum of phycocyanobilin using 2D-NMR. The parameters for a nitrogen starvation experiment involving phycocyanin are also being established. (Research supported by the Howard Hughes Medical Institute)

#### **Lobsters, Crabs, and Killer Whales (paper session)**

##### **Vocalizations of Killer Whales**

*Anna Nousek '03, Biology and Music*  
ADVISOR: *Emily Buchholtz, Biological Sciences*

Killer whales, *Orcinus orca*, are the second largest whale in the Suborder Odontocetes. They are capable of producing a wide variety of sounds – squeaks, whistles, clicks, and grunts. Several papers have been written on the differences in calls produced by different familial groups of both resident and transient killer whales but calls could not be attrib-

uted to individual whales within these families. The goal of my research has been to process a large collection of recorded sounds into a collection of individual whale calls. In 1998, Dr. Patrick Miller of Woods Hole recorded a large number of calls from Northern resident whales living off the coast of British Columbia. He used an array of sixteen hydrophones so that the origin of a particular call can be found by measuring the distance between the call and each of the hydrophones. Combining this information with the visual data about the positions of whales around the boat, we can isolate calls to specific whales. Dr. Miller has written a set of computer programs that combine the acoustic recordings and surface locations into a visual spectrogram, where the calls appear as bright red or yellow marks on a blue background. These calls can then be digitally cut from the recording and modeled quantitatively using a pitch contour program developed for the human voice. All processed calls are then compiled in a corpus of killer whale calls. Hopefully in the future this data can be analyzed to understand more closely the interactions of killer whales.

##### **Northward Invasion: Population Studies of the Nonindigenous Shore Crab *Hemigrapsus sanguineus* in Nahant, Massachusetts**

*Erin Flannery '05, English*  
ADVISOR: *Jeffrey Hughes, Biological Sciences*

The Japanese shore crab, *Hemigrapsus sanguineus*, was first found on the New Jersey coast in 1988. This species, whose larvae are released into North American ports by cargo ships carrying ballast water, has proliferated and spread to southern Maine. Fascinated by this "northward invasion" of *H. sanguineus* and the ecological implications of its range expansion, I have been studying the significant, growing population of the crabs in Nahant, Massachusetts. To augment research by scientists at more southerly locations (New Jersey to the South Shore of Massachusetts), I have been tracking temporal changes in the crab population, its distribution within the intertidal zone, substrate preferences, and

competition with indigenous and non-indigenous marine species. My investigation includes evaluation of current governmental policies regarding the prevention and control of invasive species. *Hemigrapsus sanguineus* is a striking example of how one nonindigenous species may have a drastic, lasting effect on an ecosystem.

### Transient Serotonin Synthesis and Life-long Neurogenesis in the Lobster Olfactory Pathway

Erin Savner '03, *Biological Sciences*  
ADVISOR: Barbara Beltz, *Biological Sciences*

Projection neurons are born throughout life in the olfactory system of the lobster *Homarus americanus*. The development of these neurons and of the olfactory system is influenced by the neurotransmitter serotonin. Although mature olfactory projection neurons do not express this neurotransmitter, previous research has shown that some newborn projection neurons are transiently able to take up serotonin. We wanted to determine whether the new neurons are synthesizing serotonin transiently. To do this, we used the presence of 5-hydroxytryptophan (5-HTP), a precursor to serotonin, as a marker for cells that synthesize serotonin. In embryos, cells in the proliferation zone have been found that label for both serotonin and 5-HTP, suggesting that serotonin synthesis is indeed occurring. The size and position of the cells correspond to those of the stem cells that give rise to the new olfactory projection neurons. These results lend further support for the theory of serotonergic control of life-long neurogenesis.

### Self and Identity

#### All in the Family: Four Memoirs – Readings of Original Work (panel)

##### All in the Family: Four Memoirs

Danielle Durchslag '03, *Cinema and Media Studies*, Maggie DeVries '03, *Studio Art*, Elizabeth Edmonson '03, *English*, and Lisa M. Priest DS '03, *Religion*  
ADVISOR: Alexandra Johnson, *Writing Program*

How does one write about family? How does a writer's own voice emerge when telling complex stories of others? As these four memoir presentations illustrate, a writer often has to step back from the stories she grows up with, sifting through truths. Each memoir, begun in an independent study, suggests that adversity is often a catalyst for shaping a writer as well as her stories. Danielle Durchslag explores how food profoundly shaped the psyches of both men and women in a family. Maggie DeVries transforms the experience of losing a mother by recreating aspects of that life. Elizabeth Edmonson chronicles growing up in a strict religious family. Lisa Priest shows how a mentally challenged sister was the family's lifelong teacher. Discussion will follow short readings. The emphasis will be on how to frame narrative as well as how to coalesce multiple family stories.

### The Arts

#### Bangles and Bhangra: Bringing the Beat (performance)

##### Bangles and Bhangra: Bringing the Beat

Simran Thadani '05, *English and Spanish*, Nida Mirza '05, *Psychology*, Vandana C. Reddy '03, *Neuroscience*, Sashikala Nimalendran '03, *International Relations*, Aishwarya Lakshmi Ratan '03, *Economics and Women's Studies*, Faatin A. Chaudhury '04, *Economics*, Ayesha S. Sattar '03, *Economics*, Nandita Ahmed '04, *Media Arts and Sciences*, Xan S. Chacko '05, *Women's Studies and Physics*, Meera Mohan '05, *Psychology*, Seema M. Rathod '05, *Economics*, Leah K. Solk '03, *Economics and Studio Art*, Devyani Parameshwar '06, *Physics*, Kathleen Chan '06, and Elizabeth Tharakan '06, *Economics*  
ADVISOR: Paul I. Reisberg, *Chemistry*, Durba Ghosh, *Women's Studies*, and Diana Chapman Walsh, *President of the College*

Why do 800 people flock to Jewett each November and form serpentine lines three hours in advance for tickets to a mere student production? Which annual extravaganza receives funding from over 30 organizations and departments? What

fond set of memories draws alums back year after year? What compels 100+ women to sacrifice GPAs, sleep, food, social lives, FirstClass, bodies, hearts, and souls to weeks of rehearsal? ... Shruti Laya: the annual cultural show of the Wellesley Association for South Asian Cultures. It's all student-run – from costumes to lighting and from music to actually bustin' those moves. We'll take you behind the scenes and give you a sneak peek into our labor of love. Join us as we relive the glory (and reveal trade secrets along the way). We'll talk, we'll analyze, we'll intellectualize, and – best of all – we'll dance. Come learn what makes us tick. Even Campus Po love it.

#### Glorification and Humanization of Mary in Music and Literature (panel/performance)

##### Exploring Historical Representations of the Virgin Mary through the Arts

Brooke Bryant '03, *Music and Medieval/Renaissance Studies*, Cecilia Lam '03, *Mathematics*, and Maureen McMahon '05, *French and Religion*  
ADVISOR: Sally Sanford, *Music*

Throughout Christian history, writers, musicians, and visual artists have used the Virgin Mary as a subject for their works. Many of these artists emphasize the Virgin's role as Christ's mother and subordinate, and praise her purity and mild nature, thus denying her an inner life. Such one-dimensional characterizations have had repercussions in the portrayal of women in Western culture. Our session will explore the history and breakdown of this tradition through a presentation and discussion of works of art that present Mary's own perspective of her life.



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Late Breaking Poster Session  
1:30 – 2:40  
Science Center Focus

**The Search for Quasar Host Galaxies at Redshift 4**

*Francesca D'Arcangelo '03, Astrophysics*

Advisor: Kim K. McLeod, Astronomy

In the local universe, quasars are found to live in the center of galaxies. Studies of such “host galaxies” have shown that the galaxy luminosity grows in proportion to the mass of the central black hole that constitutes the quasar. One theory based on cosmological modeling predicts that at far distances, and hence early times in the universe, host galaxies will be found with much smaller luminosities. However, if the trend seen locally holds for more distant quasars as well, host galaxies should increase in luminosity. To constrain these models, we needed to observe quasars at much greater distances than was previously possible. We have used the 6.5m Magellan telescope in Chile to obtain infrared images of eight quasars at a cosmological redshift of four. We have analyzed the images to determine whether or not host galaxies were observable, and if so, which luminosity trend they supported.

**Analysis of Campus Recycling Programs: What Can Wellesley Learn?**

*Ariel K. Diamond '05, Environmental Studies*

Advisor: Elizabeth R. DeSombre, Environmental Studies/Political Science

Why do some colleges and universities have more developed recycling programs than others? There are many factors that influence the creation of a successful recycling program, and many more that affect how the program is maintained on campus. Suburban campuses tend to have lower rates of recycling than rural or urban schools, and women's colleges are least likely to have an effective recycling program, if one exists at all. The presence of an Environmental Studies major is a far more powerful determining factor than a large endowment. What does this mean for Wellesley? There is much to overcome in order to initiate a sustainable program, but we can learn much from the successes and failures of our peer institutions. (Research supported by the National Wildlife Federation Campus Ecology Fellowship Program.)

**Coping with Stress at a Women's College**

*Kristina Fasteson '03, Psychology, Nida Mirza '05, Psychology, Chien-Na "Tina" Wong '03, Psychology and French, and Ilan Wong '03, Psychology and Economics*

Advisor: Linda Carli, Psychology

Women at Wellesley College seem to have an inflated level of stress and cope in various ways with varying results. In this study, we assessed the level of stress Wellesley students experience, determined how students cope, and evaluated the effectiveness of their coping style on their sense of well-being. We looked at 144 daily hassles for students and asked them to rate the extent to which they were bothered by each event. Next, we compared each subject's total hassle score with positive and negative coping styles. We found that students with a high level of hassles tended to use negative academic coping strategies, which was predictive of a lower sense of general well-being. A high level of hassles also predicted the use of negative social coping strategies. Furthermore, the use of positive social coping strategies predicted an enhanced sense of well-being.

## **Diversity, Nationalism, and Rebellion: The Kurdish Question in Historical and Cultural Context**

*Meredith Riley '05, Political Science and Anthropology*

Advisor: Philip A. Kohl, Anthropology

Why, in an international order where countries are supposed to be distinct, discrete nation-states, are the Kurds and their homeland split between Iraq, Iran, and Turkey? What happens when a nation of people is denied a national state? And when a state denies the existence of a nation of people? Because their traditional identity was centered on the tribe, a complex set of historical and cultural processes left the Kurds in just this situation. Today, though it has come at the price of a destroyed economic base, genocide, and oppression, they have developed a strong national consciousness and a violent resistance movement. Though prospects for an independent Kurdistan are dim, Kurdish identity has enjoyed a progression and resurgence which brings with it the potential of international recognition and survival.

## **Who Wins: The Mathematician or the Physicist?**

### **The Dirac Delta Function and Its Use in Quantum Mechanics**

*Seila Selimovic '04, Physics, German*

Advisor: Courtney Lannert, Physics

Mathematical expressions are often presented to undergraduate physics students without full explanations. In this study, we choose to examine one such object, the Dirac distribution, in detail. The application of this distribution in quantum mechanics shows one of the common mathematical mistakes in physics. Physicists often treat the Dirac "delta-function" as a function instead of as a distribution that is the limit to approximations of the function  $f(x)$  at a given  $x$ . This distinction is important for mathematicians, but for physicists it does not carry much weight. In this work we establish differences between functions and distributions, demonstrate why delta functions do not exist, and explain in which mathematical framework and physical problems one can use incorrect terminology and thus speak about delta-functions. (Research supported by the Office of the Dean of the College)