

The 2005 McNair Scholars Summer Colloquium

March 28th and 30th, 2005

4-7:30 pm

Hale 230 and 270

*"Chase dreams...
Reach for the stars"*



The Ronald E. McNair Post-Baccalaureate Achievement Program

Since 1996, the University of Colorado at Boulder has helped prepare over 100 undergraduate students from traditionally underrepresented backgrounds for graduate study through the doctorate.



Dr. Ronald E. McNair

Dr. Ronald Erwin McNair was a distinguished physicist and astronaut. He graduated magna cum laude from North Carolina A & T State University in 1971 with a B.S. in physics. He then continued his education at the Massachusetts Institute of Technology (MIT), where he earned his Ph.D. in physics by the age of 26. Soon thereafter, McNair's laser physics work with the Hughes Research Laboratory was recognized by NASA, who recruited him as a member of the 1978 space shuttle program. In 1984 McNair became the mission specialist aboard the flight of the space shuttle Challenger and the second African American to venture into space. On January 28, 1986 the tragic Challenger accident took McNair's life.

The United States Congress dedicated the Post-Baccalaureate Achievement Program created under Title IV of the Higher Education Act to McNair in honor of his life and work. In Fall 2003 there will be 162 McNair programs around the country with a collective goal of preparing undergraduates for doctoral level study. Program participants are from low-income backgrounds and are the first generation in their family to receive a college degree or are from historically underrepresented ethnic backgrounds. The University of Colorado at Boulder's McNair program helps its students to prepare for graduate study by guiding them through a nine-month research process. The students not only enroll in undergraduate research seminars designed to facilitate and expand their research experience, but also work simultaneously with graduate and faculty mentors to develop their individual projects. The Boulder program is interdisciplinary and has

Opening Address

Dr. Susan Avery

Dean of the Graduate School and Vice Chancellor for Research

University of Colorado at Boulder

March 28, 2005, 5:00 pm



Susan Avery, interim vice chancellor for research and dean of the Graduate School at the University of Colorado at Boulder, has been named Interim Provost and Executive Vice Chancellor for Academic Affairs, pending approval by the CU Board of Regents. Chancellor DiStefano said Avery has been a strong advocate for graduate education and will play a key role in the campus's efforts to build the number of doctoral students.

Dr. Avery has been associated with CU-Boulder since 1985, when she became associate professor in electrical and computer engineering. Prior to joining the faculty, she was a visiting fellow with CU's Cooperative Institute for Research in Environmental Science and a faculty member at the University of Illinois. During her tenure at CU-Boulder, Dr. Avery has been closely associated with CIRES, including serving as a fellow since 1983 and as director from 1994 to 2004. She also was director of the campus's Center for Limb Atmospheric Sounding from 1996 to 2004. In August 2004, Avery was named to the interim vice chancellor position, filling the vacancy left by the resignation of Carol Lynch. Dr. Avery's research interests include the development and use of Doppler radar techniques for observing the atmosphere; climate variability and its impacts on water in the interior West; and the role of science in decision making processes. Her past teaching includes courses in radar science and techniques, geophysical data analysis, and policy responses to climate variability. Dr. Avery is the author of numerous publications and serves on many national and international scientific boards.

Monday, March 28, 2005

- 4:00–4:30** **Brant Torres, English**
“Text-ing Land: (Con)fusions of Identity and Physical Space in Letters from an American Farmer”
- 4:30–5:00** **Andre Brooks, Communication**
“How Black and White College Students Talk about Difference”
- 5:00 pm** **Opening Keynote: Dr. Susan Avery, Dean of the Graduate School and Vice Chancellor for Research; pending appointment: Interim Provost and Executive Vice Chancellor for Academic Affairs**
- 5:30–6:00** **Pakou Xiong, Integrative Physiology**
“Hmong Diet and Habitual Activity Changes Due to the Influence of an American Lifestyle”
- 6:00–6:30** **Kur Anyiett, Kur, Political Science**
“How does the Threat of Ethnic Conflicts Affect or Shape the Politics of African States? Case Studies in Sudan and Nigeria”
- 6:30–7:00** **Angelo Maestas, Sociology**
“The Reality of Mexican American Male Students in an Urban Public High School”

Wednesday, March 30, 2005

- 4:00–4:30** **Lisa Xiong, International Affairs**
“Strategies Hmong Women Activists Use To Manage The Conflict Between Ethnic/Race And Gender Issues”
- 4:30–5:00** **Natalie Nunez , Environmental Studies**
“The Effects Of Temperature In The Generalized Two Layer Equilibrium Model On The Sorption To Ferrihydrite”
- 5:00–5:30** **Carol Trujillo, English**
“Portrayals Of Catholicism In Charlotte Bronte’s Vilette”
- 5:30–6:00** **Janice Denard, Aerospace Engineering**
“Computer Simulation of the High Stall Level of the Flexible, Thin Wing of a Micro Air Vehicle”
- 6:00–6:30** **Jeremy Johnson, Electrical and Computer Engineering**
“Finding the Limit of Actuation for a Distributed Manipulation System Using the Programmable Vector Field Theory”
- 6:30–7:00** **Diyn Logan,**
“Gender Roles for Women Members of the nation of Islam: Ways in which the Nation of Islam’s Gender Roles Affected Black Women’s Conversion Patterns and Feelings about the Organization in Denver, Colorado: 1960-2005”
- 7:00–7:30** **Gabriel Yupanqui-Ruiz, Management** - Title to be announced

Student Abstracts

Aerospace Engineering

Janice M. Denard

Faculty Mentor: Dr. Michel Lesoinne
Department of Aerospace Engineering Science

“Computer Simulation of the High Stall Level of the Flexible, Thin Wing of a Micro Air Vehicle”

Unmanned flight, in the future, can benefit from the versatility of Micro Air Vehicles (MAV's). MAV's are small, unmanned flying aircraft. They are used in reconnaissance missions for surveillance and data collection in environmental areas where human visibility is best avoided. The creation of MAV's was inspired by biological aviators, birds. Currently, the flight capabilities of birds are poorly understood and much research is needed. Like birds, MAV's have a flexible, thin wing structure which generates a higher lift than conventional, rigid wings. Stall, the angle of the wing at which the highest lift is generated, is an important component in designing a MAV. Experimentally, the stall angle of MAV's flexible, thin wing structure has been found to be approximately 35°. There is no known theory or computer simulation to explain this. Plans for a computer simulation of such a high stall angle using the Hess-Smith Panel method coupled with the Interactive Boundary Layer (IBL) method will be discussed.

Communication

Andre Javar Brooks

Faculty Mentor: Dr. Karen Tracy
Doctoral Mentor: Lorretta Chavez, School of Education

“How Black and White College Students Talk about Difference”

This study is about how black and white students at the University of Colorado at Boulder talk about difference and how the language of a cross-racial interaction in the classroom can either be interpreted as a racist comment or as a misunderstanding. The ideal end result of this is to enlighten people in academia to be more conscious of the effects language can have in an interaction.. Our perceptions and interpretations are affected by our race and the language that is used. They can have either negative or positive effects depending on the connotation of the words. This study will consist of six focus groups. Three groups will be black students and three of the groups will be white students. All groups are of mixed gender One thing that should be looked at in the future is the determination of the word “fair”.

Electrical and Computer Engineering

Jeremy M. Johnson

Faculty Mentor: Dr. Todd D. Murphey
Department of Electrical and Computer Engineering

“Finding the Limit of Actuation for a Distributed Manipulation System Using the Programmable Vector Field Theory”

Distributed manipulation seeks to control an object using large numbers of simple actuators. Prior work has shown that the most reliable and commonly used control theory for distributed manipulation systems is the Programmable Vector Field (PVF). This theory relies heavily on a few assumptions, the most important being that there is an infinite number of actuators capable of applying any needed force in any direction. This is generally not feasible. This project provides an analysis tool that will allow the researcher to find the limit of actuation needed before the PVF theory fails to control the system correctly. A simulation has been developed as part of this work to find the limit of actuation needed. This simulation will allow future researchers the ability to design a system where they can modify the number of actuators and/or the location of the actuators before they start the building process of an experiment.

Student Abstracts

English

Carol Trujillo

Faculty Mentor: Dr. Kelly Hurley,
Department of English

Doctoral Mentor: Eric Madrid, Department of Ecology and Evolutionary Biology

“Portrayals of Catholicism in Charlotte Bronte’s Vilette”

In the novel *Vilette*, the protagonist Lucy Snowe uses spiteful language to describe the Catholic Church. Catholicism is a central topic that drives the characters and plot to tell Lucy Snowe’s story. Lucy is the recreation of Bronte when she was a governess in Brussels before the novel’s conception. However, Charlotte Bronte’s life, her Catholic heritage and values are quite the opposite of her alter ego, Lucy Snowe. The Protestant/Catholic binary breaks when the theme of the maturation of the female psyche associated with Catholicism. This theme brings attention to the implications and limitations of the patriarchy in Victorian society. Looking into this relationship, the creative realm that Bronte paints through the binary opposition exposes developing feminist ideals in her writing. This study proposes to explore how Bronte’s everyday life affected her association of Patriarchal dominance with Catholicism which as it is evidence in maturation of the female psyche Vilette.

English

Brant M Torres

Faculty Mentors: Dr. Nan Goodman
Department of English

“Text-ing Land: (Con)fusions of Identity and Physical Space in Letters from an American Farmer”

In *Letters from an American Farmer*, Crèvecoeur associates Americans’ identity with the physical landscape they inhabit. This leads to a misunderstanding of the influence of physical space and a contradictory apprehension of language and metaphor. I will argue that it is through these inaccurate and misleading associations that Crèvecoeur attempts to create a sense of cultural stability. Crèvecoeur’s conflation of Americans’ identity with physical space was an attempt to override the revolutionary impulse that was moving through America. This augments the disconnect between the world of the text and the empirical world, so that Crèvecoeur’s formations of America identity become no more than futile aspirations. I will expose the irony that Crèvecoeur, in seeking stability, is employing unstable language. Finally, I will illustrate that physical space and language operate in the same way when used as anchors for identity, yet as they are both constantly changing, they are false anchors.

Environmental Studies

Natalie Nunez

Faculty Mentor: Dr. John Drexler
Department of Geological Sciences

“The Effects of Temperature in the Generalized Two Layer Equilibrium Model on the Sorption to Ferrihydrite”

The proposed research on acid mine drainage (AMD) waste answers the question, what is the effect of temperature in the Generalized Two Layer Equilibrium Model (GTLM) model on the sorption to ferrihydrite? Currently the GTLM model predicts metal concentrations in AMD water as much as 10x lower than the actual concentration in the water samples. The GTLM model is run at a constant 25 degrees Celsius, whereas the actual water temperature most of the year is between 5 and 20 degrees Celsius. We predict that when the water temperature is colder, the sorption to ferrihydrite (Fe³⁺) by dissolved metals is reversed from an endothermic reaction (produces heat) to an exothermic reaction (needs heat), causing the sorbed metals to dissolve back into the water, resulting in a higher metal concentration. High levels of metals in the water from post-mined areas pollute our drinking water and off-set the balance of the aquatic ecosystem. The three main methods used in this study are ICP/MS (mass spectrometry analysis), IC (ion chromatography), and x-ray diffraction. Samples of AMD water were taken at three cold-water sites and then were analyzed in the lab to study the behavior of the metals. The results showed that temperature did have an effect on the sorption to ferrihydrite and helped make the GTLM model more accurate for successful remediation of AMD polluted water.

Student Abstracts

History

Diyn Logan

Faculty Mentor Dr. Eric Love
Department of History

*“Gender Roles for Women Members of the nation of Islam:
Ways in which the Nation of Islam’s Gender Roles Affected Black Women’s
Conversion Patterns and Feelings about the Organization in Denver, Colorado: 1960-2005”*

When Muslim women are the topic of research, the writings concentrate mostly on Arab women, less on American women, and rarely on African American women. Similarly, the majority of research on Nation of Islam (NOI) focuses on male leadership and/or the organizational infrastructure. In both cases black women are neglected, we know very little about the actual African American women members of the NOI. This is a historical study that explores the affects of gender roles on black women’s decision to convert to the NOI. This project utilizes traditional and oral historical methods of research. Goals of this research are to create a living history, address an important element of African American history, while giving voice to a community of people traditionally denied a presence in the American historiography. This project offers a platform for these women to speak and have some agency over the way their story is remembered.

International Affairs

Lisa Xiong

Faculty Mentor: Dr Michiko Hase
Department of Geography and International Affairs

*“Strategies Hmong Women Activists Use to Manage the Conflict
Between Ethnic/Race and Gender Issues”*

Women of color who have been outspoken about gender issues in their ethnic/racial communities have been chastised by others in their group for being disloyal and divisive to their community. Oftentimes, they feel forced to choose between addressing ethnic/racial concerns and gender concerns. This study examines how this ethnic/race and gender conflict affect Hmong women activists and the issues it stirs up, to arrive at an understanding of what strategies are used to manage this conflict. Data collection will occur through in-depth ethnographic phone interviews with Hmong women activists from organizations that serve Hmong women in Minneapolis-St. Paul, Minnesota. This particular region is home to a large concentration of Hmong, and in particular, is the site of events that have forced gender issues and the ethnic/race-gender conflict to the forefront. It is believed Hmong women activists have confronted the ethnic/race-gender conflict more intensely and more often than other Hmong women.

Integrative Physiology

Pa Kou Xiong

Faculty Mentors: Dr. Nicole Stob & Dr. Doug Seals
Department of Integrative Physiology, General Clinical Research Center

“Hmong Diet and Habitual Activity Changes Due to the Influence of an American Lifestyle”

This will investigate the dietary transition of the Hmong as a first-generation population in the United States. The research will examine dietary and habitual activity differences in the Hmong population according to their duration of time residing in the United States. The focus is to raise awareness in the developing Hmong population to reduce and prevent health conditions such as high blood pressure, diabetes and obesity. General medical screening and physical examination procedures administered at the General Clinical Research Center (GCRC) at the University of Colorado at Boulder will provide dietary and nutritional values will assist in determining changes in food intake of the traditional Hmong diet and the influence of an American lifestyle. In addition, a personal interview with the participant with questions based on demographics will be conducted to acquire knowledge about the Hmong population’s adjustments to an American lifestyle.

Student Abstracts

Political Science

Kur Anyieth Kur

Faculty Mentor: Dr. Sven Steimo

Department of Political Science

*“How does the Threat of Ethnic Conflicts Affect or Shape the Politics of African States?
Case Studies in Sudan and Nigeria”*

Ethnic conflicts in Africa present a great challenge both to human lives and economic development. The purpose of this study is to explore a new dimension of conflict resolution. Previous studies have overlooked the complexity of ethnic conflicts by asserting that economics, primordial affiliation, and clash of cultures are the primary causes of ethnic cleavages. However, specific cases such as Sudan and Nigeria do not seem to fit this model; rather, there are multiple factors that influence those conflicts. This study will assess the political institutions, leadership differences of culture and levels of diversity in both countries through an analysis of the relevant literature in order to present a case study proposing these factors as contributors to instability in Africa's largest and most populous nations. These findings may suggest that there is potential for both ethnic peace and further ethnic conflict in societies embracing plural ethnicities.

Sociology

Angelo M. Maestas

Faculty Mentor: Dr. Ruben Donato

Department of Sociology & School of Education

“The Reality of Mexican American Male Students in an Urban Public High School”

In this exploratory study I will examine the schooling experiences and school environment of Mexican American males beyond third-generation immigrant status in an urban public high school. In order to understand the significance of these schooling experiences, interview questions will be operationalized to explore their interactions with educators, and other employees at the school. Relative to their first- and second-generation Mexican American counterparts, these interactions and experiences may influence the third-generation students' perspective of the importance of education and their future goals. Lastly, peer effects, work obligations, and family life may also have serious implications for academic success or failure.



Seminar Instructors

Ramona Beal, McNair Director, Fall, 2004
Prof. Gregory Young, Ph.D. Candidate, Spring 2005
Dr. Alphonse Kearsley, Director of MASP, Honors Faculty, Summer 2005

With special thanks to the 2004-05 McNair Seminar Instructors, whose good natured tenacity, careful reflection, creative energy and willingness to step beyond the comfort zone of their individual fields provided this cohort of undergraduate researchers the rare opportunity to soar toward excellence in a multidisciplinary setting.

McNair Scholar Rosters

McNair Sophomores 2004-2005 Cohort

Uriel Trujillo
Omunu Ifude Abalu

McNair 2004-2005 Cohort

Andre Brooks, Communication
Janice Denard, Aerospace Engineering
Jeremy Johnson
Angelo Maestas, Sociology
Simon Ajak Garang, Political Science
Kur Anyieth Kur, Pre-Journalism and
Mass Communication
Diyin Logan, Sociology
Natalie Nunez, Environmental Studies
Brant Torres, English
Carol Trujillo, Political Science
Lisa Xiong, Psychology
Pa Kou Xiong, Integrative Physiology

Interested in joining the Ronald E. McNair Post-Baccalaureate Achievement Program?

We are currently recruiting scholars for Summer and Fall 2005

For more information, please visit or contact us:

The Ronald E. McNair
Post Baccalaureate Program
Willard Hall, Rooms 401-402
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Campus Box 107
Boulder, CO 80309



*Phone Contact: Kent Wagner
303-492-3729*

*applications are available on-line at:
<http://www.colorado.SASC/mcnair.html>*