

# SU Rolls Out Faculty Mini-Grant Program

## Internal Grant Funding to Enhance Professional Development and Enrich the SU Community

In its ongoing effort to support the development of research, scholarly or creative programs that enhance faculty career development opportunities as well as SU's academic programs, the Office of Graduate Studies and Research recently unveiled its new faculty Mini-Grant Program. The mini-grant serves as a supplementary program, providing recipients with funding for expenses that may not be covered by existing internal or external research grant awards.

In addition to the new mini-grant, the Salisbury University Foundation, Inc. also sets aside a portion of its earnings, about \$30,000 annually, to provide internal funding for faculty and staff professional development and research. Faculty members use these funds to attend conferences, develop new programs for the University or other activities that enrich the quality of life for the SU community.

Researchers, scholars and artists from all academic disciplines and who have been appointed as tenure-track faculty (assistant professors or higher) are encouraged to submit their proposals to the Office of Graduate Studies and Research for initial consideration. The office awards grants based on creativity and scholarly and/or research significance of the proposed activities. Awards may be used for supplies, equipment, computers for field data collection, domestic and international travel, consultant fees, and more.

To date, SU has awarded nearly \$24,000 in mini-grants to faculty researchers from all four academic schools. This year's awardees are profiled here.

### Does Community Media Belong to the Community? A Case Study of Women's Practices from an Urban Resettlement Neighborhood in India

**Vinita Agarwal**

*Assistant Professor of Communication Arts*

Agarwal will use funding from the Mini-Grant Program to research how community media in India represent local voices and traditions related to advocating for change in women's health and social practices. Study participants will include healthy women over the age of 20 from a neighborhood resettlement colony in Delhi, India.

A small but influential body of literature has documented the power of community voices, not traditionally heard in the mainstream media, to bring about meaningful social change. Yet the manner in which community media operates, and the degree to which it is effective in promoting the well being of the communities it represents, is not widely understood. Through interviews with local women in the resettlement community, Agarwal and her team will study the extent to which community media represents local traditions and voices specifically within the context of women's empowerment in health and social practices. By identifying the social and cultural practices affecting the health and nutritional status of marginalized women, the study will suggest ways in which messages on community media outlets can address these social and cultural factors.

Agarwal anticipates that the project findings will directly impact the way in which community media programs design and present public service messages about health and hygiene practices and nutritional choices. Additionally, the project will augment the growing body of literature examining the role of grassroots, community-driven media in influencing social and health-related behavioral change.

### Teaching New South Womanhood: Education, Race and Religion in the Modernizing South

**Sarah Case**

*Associate Professor of History*

Case is currently working on a book titled *Teaching New South Womanhood: Education, Race and Religion in the Modernizing South*. Through a detailed study of three schools — The Lucy Cobb Institute, Spelman Seminary and Hindman Settlement School — the work explores the evolution of women's roles and duties, racial and class divisions and women's relationships to citizenship and state in the antebellum south.

Case's research examines how women of different classes and races used their education to challenge social expectations and assert public authority. Sensitive to ways in which gender intersects with ideologies of race and class, the study considers how education served to reinforce differences among women. Perhaps more importantly, however, it also illustrates ways in which education allowed women to cross racial and class boundaries and challenge social hierarchies and conventions. By emphasizing the actions of women as teachers, mothers and activists, as well as examining the shifting ideologies of womanhood, Case's manuscript brings a fresh perspective to the social, political and economic upheaval of the post-Civil War South and to the history of southern progressivism. The study also illustrates how women contributed to post-war political and cultural reconstruction.

Using education as a lynchpin, the study examines the efforts of women to reconstruct their own social identities, while striving to create their vision of the New South within a fully unified nation.

## Arabidopsis Responses and Mutants Resistant to Nordihydroguaiaretic Acid (NDGA)

**Patti Erickson**

*Assistant Professor of Biological Sciences*

Erickson will use mini-grant funding to further her research involving the study of the functions of Nordihydroguaiaretic acid (NDGA), a phenolic compound produced by the Desert Creote Bush (*Larrea tridentata*). This compound has been found to have anti-oxidant properties and has been reported to inhibit inflammation, viral replication, bacterial growth and cancer progression. The role of NDGA in *Larrea* is unknown, although it is found throughout the plant and its secretions, and it can constitute up to 15 percent dry weight in leaves. This species of plant produces a large number of phenolic compounds in addition to NDGA, so extensive biochemical analysis is required in order to fully explore the variations of NDGA within the plant.

Since *Larrea* is a slow-growing plant, with a large, uncharacterized genome, it is difficult to study the role of NDGA in *Larrea* using molecular and genetic approaches. Therefore, Erickson and her team will use the fast-growing, genetically tractable plant, *Arabidopsis thaliana*, which lacks NDGA, as a model system to study the function of NDGA.

The project will serve to strengthen collaboration within the Biological Sciences Department and expand the range of experiments being performed in order to understand NDGA biology. Additionally, the project will provide research opportunities for students, as well as generate publishable data for presentations at conferences and peer-reviewed articles.

## A Method for the Chemical Synthesis of Octahydroindoles (OHIs)

**Stephen Habay**

*Assistant Professor of Chemistry*

Habay will use funding from the Mini-Grant Program to investigate the synthesis of important alkaloids used to relieve pain and treat diseases such as malaria, cancer and Parkinson's disease. Alkaloids make up a large class of naturally occurring compounds produced by plants, fungi and bacteria. Many of these compounds are of great interest to scientists and pharmaceutical researchers, but the availability of a number of medically significant alkaloids is often limited to the very small quantities produced by living organisms.

During an investigation of how to synthesize alkaloid compounds known as decahydroquinolines (DHQs), Habay and his team of undergraduate student researchers discovered a previously unknown chemical reaction that produced a different, yet medically critical, set of alkaloid compounds known as octahydroindoles (OHIs). Habay's experiments and data collection will be extremely valuable to many chemists in their efforts to obtain larger quantities of alkaloid compounds used in the production of a variety of medicinal products. Furthermore, the potential impact of this project is of great importance to the SU community because the key chemical reaction under investigation was discovered in an SU laboratory by an undergraduate student, and it has an excellent chance for becoming a patented and published procedure for synthesizing medicinal compounds.

The Mini-Grant Program will provide funding for materials and supplies critical to the completion of the project, which will be carried out exclusively by undergraduate chemistry students under the supervision of Habay.

## Social Work Student Awareness, Knowledge and Skills of Cultural Sensitivity and Competence

**Batya Hyman,**

*Associate Professor of Social Work*

This study examines the attitudes, knowledge and skills regarding the cultural sensitivity of undergraduate and graduate students in SU's Social Work Department. Hyman will research how well-intentioned individuals develop the capacity to work effectively with people who are different from themselves.

According to the Council on Social Work Education (CSWE), baccalaureate- and master's-level social work programs must graduate professionals who engage diversity and difference in practice. The council defines diversity as the intersection of multiple factors including age, class, color, culture, disability, ethnicity, gender, gender identity and expression, immigration status, political ideology, race, religion, and sexual orientation. This policy must be addressed by all social work programs in order to maintain accreditation.

One of the most important goals for SU's social work programs is to enable students to recognize the extent to which a culture's structures and values may oppress, marginalize, alienate or create privilege for certain groups. Students completing a social work program at SU should also gain sufficient self-awareness to eliminate the influence of personal biases and values when working with diverse groups of people, as well as understand and communicate the importance of difference in shaping life experiences.

The purpose of Hyman's project is to ensure that SU's social work graduates acquire the skills, attitudes and knowledge about diversity needed to be successful in their chosen careers. The ultimate goal is to use the data gathered during the study to develop a diversity course to be taught in the undergraduate and graduate social work programs.

Funding from the Mini-Grant Program will be used for travel expenses, to conduct graduate student focus groups at three different locations, data analysis software and transcription fees.

## Health and Behavior Study Follow-Up

**Karl Maier**

*Associate Professor of Psychology*

Maier will use funding from the Mini-Grant Program to follow up with subjects who participated in a health and behavior study completed between 2008 and 2010. Maier worked with student researchers to build and implement a large, computer-based survey, consisting of questionnaires designed to measure a range of psychological conditions, including stress, depression, hostile personality style, etc. The researchers also collected

anthropometric data such as height, weight, body mass index and waist circumference.

The original participants will be invited back to examine changes in their psychological measures and their health risks over time, using the same survey and anthropometric assessment. In addition, the new study will include blood pressure and heart rate measurements, key variables in health risks that were not assessed in the original study.

Funding from the Mini-Grant Program will cover monetary compensation for participants as well as travel to present findings at meetings and conferences. The research team plans to present its findings at the annual meeting of the American Psychosomatic Society or the Society for Behavioral Medicine. The project will also provide undergraduate students with research opportunities such as interacting with participants, data management and analysis and longitudinal research, all of which are essential for preparing for post-baccalaureate studies.

### **Comparison of 11 Weeks of Resistance Training with Recreational Versus Maximal Concentric Muscle Actions on Exercise Energy Expenditure and Body Composition**

**Scott Mazzetti**

*Associate Professor of Exercise Science*

Mazzetti and his team will investigate how energy expenditure is influenced after resistance training, and how different contraction intensities will affect energy expenditure in women.

Medical costs for overweight or obese Americans are estimated to be approximately \$147 billion annually. This data, combined with an increasing incidence of obesity indicate a significant need for research initiatives that can help improve preventative measures for obesity. The American College of Sports Medicine and the American Heart Association recommend strength training for a minimum of two days a week as a component of a successful exercise program. Resistance training can increase muscle mass, which may result in an increased resting metabolic rate, but most research suggests that energy expenditure during exercise is the most beneficial in terms of weight loss or obesity prevention. Unfortunately, nearly all resistance training studies report only modest reduction in body fat.

Studies on male subjects conducted by Mazzetti demonstrated that energy expenditure increased during and after resistance exercise when performed with maximally explosive contractions, which require the lifter to raise the load smoothly, without jerking or bouncing. The influence of explosive contractions on energy expenditure has not been examined in women, although obesity is more prevalent. Mazzetti will compare changes in resistance exercise energy expenditure following 12 weeks of weight training with either maximally explosive or recreational contractions in overweight women. This represents a novel approach to studying the efficacy of resistance training as a preventative measure for obesity in women.

### **Employee and Employer Perceptions of the Chinese Labor Contract Arbitration Committee; Case Study of the Unionization of Wal-Mart in China**

**Patrick McDermott**

*Professor of Management*

McDermott will use funding from the Mini-Grant Program to expand his field research work on labor relations in China. McDermott and his team will return to Dalian and visit other cities as well. Since 2007, when McDermott began his initial study, the Chinese government made significant changes to Chinese labor contract laws to be more favorable toward workers. McDermott will measure the effectiveness of these changes. Using data from the 2008 study as a baseline, he will determine how labor contract disputes are resolved and draw conclusions about the overall effectiveness of the process and the influence of these changes. McDermott will analyze settlement rates, amounts of money and other related aspects of the mediation and arbitration processes.

While in China, McDermott also plans to collaborate with leading Chinese labor law scholar Professor Liu Cheng of Shanghai University to study the Chinese government's efforts to organize the workers of Wal-Mart into a union. If the Chinese government is successful, the results of this research could lead to a groundbreaking business case study, as well as provide international research opportunities for students studying business and finance.

Funding from the Mini-Grant Program will provide McDermott and his team with travel and accommodations for 10 days.

### **Vascular Dysfunction in Animal Models of Muscular Dystrophy**

**Victor Miriel**

*Associate Professor of Biological Sciences*

Muscular Dystrophy is a family of diseases caused by genetic mutations that lead to skeletal and cardiac muscle dysfunction. The skeletal and cardiac pathologies associated with these genetic mutations are well known and documented, but recent research suggests that vascular dysfunction also contributes to the skeletal and cardiac dysfunction. However, few studies have been done to test vascular dysfunction in patients with Muscular Dystrophy.

Miriel's project focuses on determining the extent and location of vascular dysfunction in animal models of Muscular Dystrophy. The experiments will involve the use of mice that have been genetically altered to mimic the mutations found in the disease.

While SU students have a wide variety of research experiences from which to choose, there are few experiences involving the basic biomedical science of human diseases, yet student demand for this kind of research is high. This project will provide students with exposure to methods used in the study of the basic cellular processes that contribute to human diseases. Additionally, the mini-grant funding will provide Miriel and his team with the resources needed to improve the efficiency of data collection as well as provide the preliminary data required to develop competitive grant proposals to agencies such as the American Heart Association, the Muscular Dystrophy Association and the National Institutes of Health.

### **Long-Term Thermal History and the Plasticity of the Response to Temperature Change in Icelandic Arctic Charr**

**Eugene Williams**

*Professor of Biological Sciences*

Williams will use mini-grant funding to continue the faculty-student collaborative research projects in Iceland. Williams and his team of scientists comprised of students and faculty from SU and Hólar University College in Iceland have taken an innovative approach to studying the long- and short-term effects of climate change on fish. Over the next three summers, the team will travel to northern Iceland to examine populations that have not experienced significant change in environmental temperature for many generations and conduct laboratory and field research to determine if such fish can tolerate temperature fluctuations. The team will also examine the extent to which some species have adapted to the temperature of their environment, along with the presence or absence of molecular, cellular and physiological mechanisms that facilitate acclimatization, or the physiological adaptation of an animal or plant to changes in climate or environment. (See the related article on page 3.)

Williams will use funding from the Mini-Grant Program to purchase the laboratory supplies necessary for extracting RNA from fish tissues in order to examine the long-term physiological effects of climate change on Icelandic charr. These experiments will be carried out by undergraduate students under the supervision of Williams.