

SURE AWARDS MADE FOR SUMMER '06

Thirty Stonehill College students will work with twenty faculty members on a variety of research projects over the coming summer of 2006. The scholars and their faculty mentors are the eleventh group to work under the Stonehill Undergraduate Research Experience (SURE) program, whose purpose is to provide students with an opportunity to perform significant, publishable research under the guidance of an experienced faculty researcher. The research experience will help to provide students with a competitive advantage in graduate and professional school applications and in post-college employment opportunities, as well as to provide assistance to faculty in research activities.

Amanda Perez '07 will work with **David Almeida**, Associate Professor of Education and Chair of the Education Department exploring *Historical Drama, Juvenile Offenders, and the Perception of Self*. Some research shows that adolescent juvenile offenders exhibit narcissistic personality types, characterized by a grandiose self-image and attention seeking behaviors. Reader's Theater, using historical drama, is an educational approach that focuses on using plays as a teaching tool, placing students "center stage" in the classroom. It is hypothesized that using these plays will help teach U.S. history to students detained in adolescent treatment facilities far better than traditional educational approaches. Perez, an Education major, will help review films and literature on the topic and will spend five weeks in a juvenile treatment facility, helping to produce a Reader's Theater play with students detained there. The results will be presented as a conference paper to the International Correctional Education Association and will hopefully be published in a future issue of *The Journal of Correctional Education*.

Joanna Channell '07, Kayla O'Malley '07, Melissa Carr '07, and Zachary Ennis '08 will work with **George Branigan**, Associate Professor of Education on *The Girls of Providence Reform School: Abuse and Allegations*, a continuation of last years SURE project, *Institutions, Immigrants, and Inmate: Reform School Records in Providence, RI 1858-1875*. Branigan has uncovered additional documents and journals that will help the group reach a better understanding of the Providence Reform School (1850-1880). These documents include the missing third of the Superintendent's journals and a record of an official investigation into allegations of abusive practices at the reform school. This year the group brings together a variety of majors with the intention of bringing different points of view to the cross-disciplinary work. Ennis will contribute with knowledge from his major in History, while all three other student researchers are Elementary Education majors, with secondary majors in Sociology (Channell), English (O'Malley) and Psychology (Carr). Together, they will finish transcribing the newly uncovered documents and continue reconstructing the life course trajectories of the inmates including details such as living conditions, family dynamics, marital status and occupational track. The outcomes of this project include an indexed CD made available to Rhode Island Historical Society, as well as various publications and presentations at conferences around the nation. Joanna Channell will also serve in the program's first SURE Leader position.

Andrea Bobotas '07 will work with **Linzy Brekke-Aloise**, Assistant Professor of History on *The Art of Advertising: The Visual Iconography of Commerce in Eighteenth-Century America*. The eighteenth-century saw the emergence of consumerism as a central dynamic of American economic and social life. One particularly important aspect of this development was the shift from print to visual strategies of communication and the appearance of art in advertising. This is an almost entirely unexplored area of scholarship in part because historians lack the training to interpret images. Bobotas, a Fine Arts and History major, will help remedy this problem with her experience in historical and art historical training. The end product will be a co-authored conference paper or article.

Emily Chambers '07 will work with **Anthony Celano**, Professor of Philosophy, on *The Understanding of Practical Wisdom*. This project concerns the investigation of the relation between moral theology and ethical reasoning. Specifically, how the understanding of practical wisdom was transformed in the Latin Middle Ages, and how the understanding of the Aristotelian virtue of phronesis became one of many virtues and not the primary moral characteristic of a good person. Chambers, a Philosophy major, will assist in research that will eventually appear in a book length study, and together they will present their findings at the Boston Colloquium of Medieval Philosophy.

Emily Hayden '07 will work with **Lincoln Craton**, Associate Professor of Psychology on *Music Preferences*. Craton has recently started a new line of research exploring the development of musical preferences across the lifespan and how these preferences affect cognitive processing of musical stimuli. Hayden, a Psychology major, will help conduct a retrospective study of developmental changes in musical preferences and begin a study that investigates the effects of musical preferences on recognition memory for musical passages. Together they will explore topics such as whether musical preferences formed in young adulthood become fixed for the rest of one's life, and whether listeners process their preferred musical genre more effectively than non-preferred genres. They expect to submit their results to the American Psychological Society's Annual Convention taking place in spring 2007.

Benjamin Bolduc '07 will work with **Marilena Hall**, Assistant Professor of Chemistry on *The Use of NMR and UV-visible Spectrometry to Characterize the Zn²⁺ Binding of Peptides Selected by Phage Display*. The broad goal of this project is to explore Zn²⁺ coordination in enzyme active sites through the use of short peptide models. Understanding the action of enzyme catalysis is crucial to protein engineering and to the development of novel catalysts. This project began in the summer of 2002 with Bolduc, a Biochemistry major, continuing the most recent aspect of the research beginning in the summer of 2005. He will help complete the project and produce the final manuscript.

Nathan Regan '07 will work with **Patricia Leavy**, Assistant Professor of Sociology on *Social Research Methods and the Arts*. The development and use of art-driven methods of research has exploded in the past five years, particularly in sociology. Currently, there are no research method books on the market that exclusively deal with the full range of art-centered methods. Regan, a Sociology and Psychology major, will help prepare four chapters of Leavy's book *Method Meets Art: Social Research and the Creative Arts*, which explores the burst in art-driven approaches in social research. He will receive full credit as a research assistant in the final published book.

Kristen Demick '07 and **Brian French '09** will work with **Louis Liotta**, Professor of Chemistry on *The Synthesis of Polyhydroxylated Pyrrolidines and Pyrrolizidines from Commercially Available Sugars*. Carbohydrates are the most widely distributed naturally occurring organic compounds on earth. Over the last ten years, SURE scholars in collaboration with Dr. Liotta have developed a means of efficiently converting commercially available sugars into vinyl pyrrolidines. Demick, a Chemistry major, and French, a Biochemistry major, will further develop the synthesis to allow for the synthesis of tetrahydroxylated pyrrolidines and pentahydroxylated pyrrolizidines. Results of the research will be presented at various chemistry conferences. The project will also include the preliminary preparation of a manuscript that will be submitted for publication once sufficient results have been obtained.

Jordan Marcou '07 will work with **Gregory Maniero**, Assistant Professor of Biology, on *Kinetics of the Secondary Antibody Response in the African Clawed Frog (*Xenopus*), and the Northern Leopard Frog (*Rana pipiens*)* which is a continuation of last summer's SURE project in addition to 11 years of Maniero's research. The project focuses on effects on amphibian immunity to provide insight on environmental factors that decrease the ability of frogs to protect themselves from disease. Amphibian pathogens can be classified as emerging infectious diseases and, therefore, a possible threat to worldwide human health. An understanding of these diseases in non-humans is a valuable tool in the preservation of human health. Marcou, a Biology major, will assist Maniero in his research, and if the data proves their hypothesis Marcou will help prepare it for publication and presentation to the scientific community.

Benjamin Seidel '07, Juan Carlos Tapia '07, Lynes Torres '08, and Amber Churchill '08 will work with **Robert Peabody**, Professor of Biology, **Diane Peabody**, Research Professor of Biology, and **Maura Tyrrell**, Associate Professor of Biology on *Can niche partitioning occur within a life cycle?* This project is a continuation of five years of an ongoing experiment, concerning honey mushrooms and their unusual genetic variation. The research has lead them to believe that evolutionary adaptation that normally take place between generations, could potentially take place within generations in the bodies of single honey mushroom individuals. This potentially means that individuals may dynamically reconfigure themselves in response to changes in the environment. Seidel, Tapia, Torres, and Churchill, all Biology majors, will aid in the continuation of the project by testing the hypothesis that: Different stages of the honey mushroom life cycle utilize different niches. The outcome will include a paper published in a refereed journal and a presentation at ENEBC.

Michael M. Ryan '08 will work with **George Piggford, C.S.C.**, Assistant Professor of English, on *The Influence of Walt Whitman on Some Contemporary American Poets*. This project will examine the feasibility of Whitman's mandate that all Americans someday become poets. Particular attention will be given to three writers: Sherman Alexie, Timothy Liu, and Mark Doty, who represent voices that deviate from a conventional and Eurocentric norm. At the end of the research, Ryan, a English major, will write an essay on the connections between Whitman's poetic practice and at least one of the contemporary poets studied. Piggford and Ryan intend to present their findings at a scholarly conference.

Adrienne Schur '07 will work with **Christopher Poirier**, Assistant Professor of Psychology on *Developmental Changes in Face Perception*. Many studies have documented that participants show an "own-race bias" in perceiving and remembering faces; that is, they perform better with faces of their own race. Schur, a Psychology major, will aid Poirier in investigating whether a comparable "own-age bias" influences developmental change in face perception. This includes running a face perception experiment as well as creating an entirely new database of stimuli for future experiments. The resulting data will be prepared for submission to a research conference.

Annie Liu '07 will work with **Cheryl Schnitzer**, Assistant Professor of Chemistry on *Theoretical and Lab-based Studies at the Gas-Liquid Interface*. Run-off from industrial processes has created heavy metal contamination in drinking water, which has become an environmental concern for many inner-city residents. One way to remove metals from drinking water is to add a surface-active complexing agent followed by bubbling air through the solution. The newly formed metal complexes jump onto the rising air bubbles, causing impurities to rise to the top which can then be skimmed off to create suitable drinking water. Liu, a Biochemistry major will help determine the surface activity of heavy metal complexes in order to improve wastewater remediation efficiency.

Christina Blunt '07, Penelope Figuereo '07, and Ryan Wishart '07 will work with **Keri Iyall Smith**, Assistant Professor of Criminology and Sociology on *Creating a Comprehensive Dataset of the World's Indigenous Peoples*. Indigenous nations exist within states, thus the members are citizens of the state. Yet, these groups and individuals often find themselves outside the bounds of protections and freedoms. Indigenous movements are working within and outside a multi-tiered political system in order to obtain freedoms and protections. Blunt, a Sociology and Fine Arts major; Figuereo a Criminology and Psychology major; and Wishart, a Sociology major, will help develop an international dataset of indigenous groups that will enable them to better understand the indigenous experience, the role of the state, and globalization. The outcome of the work will be a comprehensive dataset for use in further analyses, and possibly for publication with a data archive such as the Inter-University Consortium for Political and Social Research (ICPSR) at the University of Michigan Institute for Social Research.

Sara Thompson '08 will work with **Jennifer Swanson**, Associate Professor of Business Administration on *Critical Success Factors for U.S. Expatriate Assignments and International Business Transactions in Argentina, Brazil, and Chile*. With the increased interest in overseas investments along with proposals to expand economic cooperation between North and South America, foreign direct investment (FDI) in South America will continue to increase even further, especially in Argentina, Brazil, and Chile. Unfortunately, many of the international business dealings and expatriate assignments that result from FDI will not be entirely successful because of the inability of the expatriate to adjust to a new cultural environment, especially when the host country has significantly different political, economic, and cultural environments from that of the home country. Thompson, an International Studies major, will work with Swanson to compile research to assess the attractiveness of Argentina, Brazil, and Chile as FDI sites for U.S. companies and uncover those factors that make activities related to FDI successful, including expatriate assignments and other international business transactions. The end result of the project will be a written research paper to be presented at various conferences and published in an international journal.

Julie Radziewicz '08 and Katherine Whitaker '08 will work with **Leon Tilley**, Associate Professor of Chemistry on *Synthesis of Tetrahedrane*. The ultimate goal of this research is the synthesis of the highly symmetrical hydrocarbon tetrahedrane. There is an academic interest in highly strained hydrocarbons as potential fuels and their nitro derivatives as potential explosives. Radziewicz and Whitaker, both Chemistry majors, will begin the synthesis while also researching the literature for new procedures and methods. The outcomes of the project would be a minimum of one publication and a presentation at American Chemical Society national meetings.

Christopher Rich '08 will work with **Leon Tilley**, Associate Professor of Chemistry on *Synthesis of 1,1,1-trifluoro-4-trimethylsilyl-2-butanol-3,3-d2*. Since the summer of 2004 Tilley has been working with various SURE students to synthesize this isotopically labeled material. A key step in this synthesis involves the synthesis of 1,1,1-trifluoro-4-trimethylsilyl-2-butanone. A number of attempts to produce this material were unsuccessful – the most promising seems to be by oxidation of the precursor alcohol 1,1,1-trifluoro-4-trimethylsilyl-2-butanol to the ketone. Recently, Tilley has come across a promising literature procedure for oxidation using a ruthenium catalyst and periodate as a co-oxidant. Rich, a Chemistry major, will continue the synthesis projects with enough data to for a publication. These studies may allow organic synthetic chemists to achieve greater insight into controlling reaction outcomes in order to synthesize a favored product that could have a variety of uses and are also applicable to the research group's other summer project. The final outcome of this project will be a published article and possibly a conference presentation of the study.

Patrick O'Toole '07 will assist **Peter Ubertaccio**, Assistant Professor of Political Science on *A Case Study of the Multilevel Marketing of American Political Parties*. Beginning in the 1970s, many analysts and political scientists agreed that political parties no longer fulfilled their roles as vote-getting institutions that served as intermediaries between government and the citizenry. However, between 2002 and 2004 the Republican Party initiated a grass-roots mobilization process called the 72-Hour Project that was designed to mimic the techniques of multi-level marketing (MLM) companies by encouraging grass-roots participation in electoral campaigns. MLM techniques are widely credited with providing the institutional framework for George Bush's winning reelection campaign. The focus of the research project is to determine whether the MLM of parties has become institutionalized and whether this development signals a significant change in the organizational capacity of political parties. O'Toole, a Political Science major, will assist Ubertaccio in research leading toward a book, *The Multilevel Marketing of Political Parties*, in addition to a presentation of their findings at the annual meeting of the Northeastern Political Science Association.

Matthew Heard '07 and **Erik Dingley '07** will work with **Christopher Ward**, Assistant Professor of Psychology on *Effects of Sleep Fragmentation on the Prefrontal Cortex*. Sleep fragmentation is a common symptom in many clinical disorders. It has been proposed that sleep must continue uninterrupted for a minimum length of time in order for sleep to produce its full restorative effects and optimal cognitive function. Heard, a Psychology major, and Dingley, a Biology major, will assist Ward in the use of rodents to test their hypothesis that fragmentation of sleep will decrease performance on various tests that utilize the prefrontal cortex. Following the behavioral testing, they will analyze and interpret the results for submission to research conferences in the 2006-2007 school year.

SURE Scholars will begin the program on May 30, 2006 for an eight or ten week period. They will engage in weekly meetings to discuss the progress of their projects and other topics of general interest, and will be paid a stipend for their full-time service. All SURE Scholars will present summaries of their summer's work at an all-campus poster session in the early fall.

Students and faculty members who wish to pursue a SURE research project for the summer of 2006 may contact the Office of Academic Development, Duffy 119, ext. 1069, for further information. The deadline for applications for the summer of 2007 is December 8, 2006.