“Researchers at Georgia State University have achieved a record level of funding—$53 million—in the first two quarters of fiscal year 2015, a 30 percent increase over last year’s $39.9 million awarded in the same period. This funding represents a 50 percent increase in research funding over 2011.

Through our funded research we are asking important questions and solving problems that affect the lives of people in Georgia and beyond.

I’m happy to report an increase in research funding for fiscal year 2015 in the Lewis School. To date, we have a little over a million dollars in research funding for the year. Many of these grants are multi-year awards that will bring in more than $3 million to the Byrdine F. Lewis School of Nursing and Health Professions in the next few years.

Our largest grant to date in the Lewis School is a $1.1 million grant to provide intercollaborative education to graduate nursing students. This three-year grant, from the federal Health Resources and Services Administration (HRSA) and led by Carol Grantham and Margaret Moloney in the School of Nursing is designed to explore ways to better care for the growing population of patients with multiple, chronic conditions.

Internal pilot grants are often a precursor to external funding for larger grants. Dawn Aycock, assistant professor of nursing, has received a Georgia State University grant to test the effectiveness of stroke risk reduction counseling in young adult African-Americans.

Other internal grants include the work of Megan McCrory, assistant professor of nutrition. McCrory is working with automatic continuous glucose monitors to observe eating patterns and the impact on chronic disease.

Research in the Lewis School touches a broad range of the population, including young athletes with ACL injuries, infants at risk for Type 1 diabetes, to adults recovering from a stroke.

While our faculty members are experts in their fields of study, many junior faculty come to the university with limited grant writing skills. Our college provides a boot-camp led by experienced grant writers to help them build these skills. These grant writers include Elizabeth Tornquist, a well-known science writer, Dr. Steven Wolf, professor at Emory University’s School of Medicine and myself. We take the faculty through exercises that let them leave the workshop with a completed draft grant proposal, ready for submission to any number of federal agencies.

Our college is also proud of our youngest researchers, our students. Part of our job in the Lewis School is to inspire, mentor and mold the next generation of researchers and clinicians. Their innovations will impact the delivery of healthcare in years to come. One respiratory therapy student is observing the effects of glove use on reducing the transfer of microbes from patient to patient.

The Lewis School is also sharing researcher’s expertise in twice-monthly public forums. Please join us for a lunchtime lecture of a variety of topics. You’ll find a complete calendar of events on the back of this publication.

We are extremely pleased with the incredible performance of our faculty in increasing our research portfolio. I invite you to visit our research website at snhp.gsu.edu/faculty-research and to follow our growing research activities.

Regards,
Andrew J. Butler, Ph.D, PT, MBA, FAHA
Interim Dean and Associate Dean for Research
Preparing Nurses to Care for Patients With Multiple Chronic Conditions

The Byrdine F. Lewis School of Nursing and Health Professions received a three-year, $1,146,189 grant from the U.S. Department of Health and Human Services, Health Resources and Services Administration to develop a new interprofessional model for graduate nursing education.

This new model of interprofessional education is aimed at improving coordination of patient care for individuals with multiple chronic conditions. An estimated 60 million Americans have multiple chronic conditions. That number is expected to rise to 81 million in the next six years, becoming a major healthcare challenge.

“This grant allows us to prepare health professionals to work together, to collaborate in caring for people who are aging and have multiple chronic conditions,” said Carol Hall Grantham, project director and clinical assistant professor of nursing. “Georgia is a medically underserved state, with very ethnically diverse residents and an aging population which has multiple chronic conditions.”

“It is so important to maximize nurses’ time in patient care, and interprofessional collaboration allows them to do so,” says Grantham. She says the pilot grant program aims to be the best example of how interprofessional collaboration can work.

“We are fortunate to have the strength of student and faculty diversity, as well as practice diversity within our faculty,” she said.

Over the next three years, up to 60 graduate nursing students in the Lewis School, along with graduate students in respiratory therapy, nutrition, physical therapy and social work, will work together in a clinical course taught by faculty who are clinical health experts in these programs. They will also learn from Georgia State’s gerontology faculty.

The interprofessional education (IPE) faculty team consists of lead faculty members from each of the Lewis School’s disciplines and includes members from the College of Arts and Sciences as well. Core faculty includes Carol Hall Grantham, primary investigator who assumed the role after original PI Margaret Moloney retired, Kimberly Morelli, Department of Physical Therapy, Anita Nucci, Department of Nutrition, and Chip Zimmerman, Department of Respiratory Therapy and from the Andrew Young School of Policy Studies, Nancy Kropf, School of Social Work, also joins the team. The team also includes John Milner, nursing informaticist, and Jennifer Morgan, evaluation lead, Gerontology Institute.

Since the grant was awarded the team has received training on interprofessional care and has been busy planning and designing the curriculum for the IPE class launch this spring. The curriculum also includes partnership with community agencies for the first cohort’s clinical experiences. For this, Georgia State has partnered with Crestview Health and Rehab Center and Briarcliff Oaks assisted living facility.

The team has also prepared abstracts for dissemination.
As ACL injuries rise among young athletes, one physical therapy researcher wants to know how to prevent these injuries from causing mobility and pain issues when the athletes grow older. Ling-Ching Tsai, an assistant professor of physical therapy, studies the cause of joint degeneration in young adult athletes a decade after experiencing a devastating ACL injury and successful restorative surgery. The ACL, anterior cruciate ligament, is a major ligament in the knee and injury to it is one of the most common knee injuries in sports.

“Even with successful surgery, approximately 50 percent of them will develop joint degeneration in 10-15 years,” Tsai says.

Young athletes who experience the initial injury at age 20 to 30 may develop severe joint problems by ages 30 to 40, years before their non-athlete counterparts. This early degeneration presents a significantly different problem from the general public, who will develop the issues in their late 50s or 60s.

“Can we develop an effective intervention to slow down the process? It might be impossible to prevent [the degeneration] from happening, but if we can slow it down, we can help them [young athletes] maintain an active and healthy life for a longer period of time,” Tsai says.

Using a special force plate scale, which measures the intensity of the research participant’s foot hitting the ground, Tsai records force data. In addition, by placing reflective markers on the participant’s skin at the joints, he can use multiple infrared cameras to capture motion data. Small electromyography electrodes are attached to calf and thigh muscles to record muscle contractions that help determine muscle activity data.

A related project Tsai is developing with researchers at Georgia Tech and Emory will provide him with increased dataset for his ACL research. Using rats, which run on miniature treadmills, and by x-raying their moving bodies, Tsai and his colleagues can monitor skeletal movement. Rats experience similar joint degeneration as humans after knee ligament injury, but since they age faster, results can be recorded in a few months instead of decades.
The Effect of Wearing and Not Wearing Gloves on Microbial Growth on the Mechanical Ventilator Control Surface, an In-Vitro Study

Rayan Siraj, respiratory therapy student, noticed numerous clinicians at clinical sites did not wear gloves when carrying out procedures and would subsequently transport microbes from patient to patient. After observing this oversight, Siraj decided to study its effects.

“The number one priority for all clinicians is the patient and we should take all safety precautions to keep them safe,” he says.

Siraj collected using a pre-test/ post-test trial on the surface of a rotatory ventilator knob in a student lab on the Georgia State campus. All ventilators received a pre-decontamination culture swab after decontaminating them with foam disinfectant product. Students were then divided into two groups, gloves and ungloved, in which they would manipulate the ventilator. Next, all ventilators received a post decontamination culture swab. The samples were then incubated for 72 hours at room temperature to allow for microbial growth.

Although the results of his campus experiment showed no effect between wearing gloves and not wearing gloves, Siraj admits that more robust findings could be attained in a hospital setting.

“The results showed that any [glove-wearing] technique could be used while students [are] doing their lab [work]. However, this might not be the case when clinicians deal with real patients in the hospital. [A] large sample size is recommended from multiple schools to validate the results.”

Siraj, a graduate RT student, presented his research at the Georgia Society for Respiratory Care Winter Symposium on February 27.
Grant Writing Workshop Aids in Successful Grant Bids

The Lewis School provides distinctive workshops on various aspects of writing research proposals. Topics covered include constructing specific aims, the NIH-style bio sketch and most recently, writing applications for NIH research grants. Each workshop seeks to support faculty in successfully obtaining research grants.

W.R.I.T.E. builds upon past workshops by providing vigorous engagement of guidance, consultation, and writing sessions. The workshop is entirely practical, and selected attendees come prepared to write, receive feedback, and finish with a product. Select tenure-track, and tenured faculty can work on their research proposals while being supported by lectures and consultation in grant writing, clinical trial design, biostatistics, collaboration, grantsmanship, budgeting, and career development. Faculty may take advantage of both one-on-one mentorships and applied discourse on various topics in writing for research. Then they leave the W.R.I.T.E. workshop with a completed full draft of a grant proposal ready for submission to the NIH or other similar federal agency.

The W.R.I.T.E. workshop led by Dr. Andrew Butler, interim dean and associate dean for research, noted scientific writer Elizabeth Tornquist, and Dr. Steven Wolf, professor, Emory University School of Medicine.

Butler has been the PI on multiple NIH, VA, and industry-sponsored grants. He has been on the mentoring team of 5 junior faculty K-awards and served on numerous grant review panels. Over the past 15 years, Butler has been awarded over $10 million in external funding to support his research.

Tornquist has taught scientific writing for nearly 40 years, conducting numerous workshops for university faculty and scientists. She is nationally and internationally known as an editor and has helped scientists from many disciplines write fundable grant proposals and publishable articles.

Wolf has led several NIH-funded clinical trials governing this concept and has written over 220 publications.

This year’s W.R.I.T.E. workshop, held at the Emory Conference Center, included Ashley Helvig, assistant professor of nursing, Megan McCrory, assistant professor of nutrition, Huanbiao Mo, chair and professor of nutrition, and Ling-Ching Tsai, assistant professor of physical therapy.
Much controversy surrounds the relationship between eating patterns and healthy weight. Commonly, people are told to eat breakfast and plan their meals and snacks in order to lose weight or prevent weight gain.

One problem with this advice is that not enough details about the appropriate timing and amounts of calories to consume at different eating occasions are known, so the advice varies. Another problem is that it’s often very difficult to get an accurate picture of what, how much and when people are eating. Traditional ways of collecting this information rely on individuals relaying that information, so it is subjective and often inaccurate.

Megan McCrory, a new associate professor in the Department of Nutrition, examines the impact of eating patterns on weight control and risk for chronic diseases. She says the existing research in this area is controversial, with some showing that skipping meals makes the individual eat larger amounts later in the day than they otherwise would while other research shows the opposite. She is also interested in why some people are hungrier throughout the day than others.

Using newer, more objective ways to measure food intake may lead to clearer answers in this area. McCrory is the nutritionist on a multi-university National Institutes of Health (NIH)-funded 5-year grant to assess food intake with the Automatic Ingestion Monitor, or AIM. In the meantime, McCrory makes use of other methods, such as a continuous glucose monitor (CGM), to study the types of carbohydrates participants are consuming. CGMs are primarily used by diabetics to help keep blood sugar in check. She is particularly interested in whether the carbohydrates consumed are refined or unrefined and fibrous.

Unrefined carbohydrates are absorbed into the bloodstream much more slowly than refined carbohydrates and help the individual avoid blood sugar peaks and stress on the pancreas to produce more insulin. The CGM provides objective data and may give better clues to the participant’s diet than traditional food diaries and questionnaires. She is studying whether the CGM will allow her to identify the times and types of carbohydrates eaten by people who are not diabetic.

McCrory is also collaborating with Georgia State University nutrition professor Dan Benardot, whose research shows that certain patterns of energy balance throughout the day relates to body composition with the app he developed, NutriTiming®. Their work is funded by a research initiation grant from the Office of Research in the Byrdine F Lewis School of Nursing and Health Sciences.

“Connecting information about blood glucose patterns throughout an entire day with highs and lows of energy balance throughout a day may help us better understand why some people are hungrier than others,” says McCrory. “Hunger can be both a cause and consequences of certain eating patterns. So this information, along with information from devices such as the CGM and AIM, should ultimately lead to better advice about how much, when, and what people should eat throughout the day to control their weight and reduce their risk of developing chronic conditions like heart disease, diabetes and even cancer.”
The Byrdine F. Lewis School of Nursing and Health Professions welcomed several new research faculty for the 2014-2015 academic year. We are pleased to have this group of strong researchers join the school and expect that they will make an impact on research at Georgia State University.

Ashley Helvig, Ph.D. joins the Georgia State research faculty from the University of West Georgia, where she received her master’s degree. Having some familiarity with Georgia State, she received her Ph.D. in nursing at the institution, she brings adult medical/surgical, and nursing education expertise to the research team.

Her research interests include sleep and glucose metabolism, the effect of omega-3 fatty acids on the brain, and physiological components impacting health. Helvig has appeared in several publications including MEDSURG Nursing, The British Journal of Neuroscience Nursing, and Pediatric Nursing. She has presented on topics including epilepsy, adolescents with migraines, and protecting newborn’s brains with omega-3 fatty acids. Helvig is a member of the Sigma Theta Tau Nursing Honor Society, the Southern Nursing Research Society, and the National League for Nursing.

One of the newest additions to the nutrition faculty is Megan McCrory, Ph.D., who prior to her arrival at Georgia State, held a faculty position at Purdue University. McCrory received her academic training at the University of California-Davis where she studied physical education, exercise science and completed a Ph.D. in nutrition with minors in statistics and endocrinology. She completed her postdoctoral training in energy regulation at Tufts University in Boston.

McCrory’s primary research interests include the role of eating patterns, such as meal skipping, snacking and dietary variety, in weight management and chronic disease risk, and improving the measurement of dietary intake. Her recent publication contributions include meal-skipping effects on energy intake and body weight and appetite and glycemic responses to legume consumption. McCrory currently holds a position on the Frontiers in Nutrition editorial board and is a member of the Nutrition Advisory Board for Dunkin Brands. In 2013-2014, she was organizer and chair for the Symposium at the Experimental Biology annual meeting, which covered novel approaches to targeting eating behaviors important in weight management and disease risk. She has been awarded the ILSI North America Future Leader Award in Nutrition and the Acorn Award for grants >$1 million at Purdue University.

Huanbiao Mo, Ph.D. comes to the Lewis School with a broad range of proficiencies. A full professor, Mo is also chair of the Department of Nutrition and holds a joint appointment at the Department of Chemistry. His B.S. is in biochemistry from Fudan University, and his M.S. is in plant physiology from the Shanghai Institute of Plant Physiology – Chinese Academy of Sciences. Later, he received his Ph.D. in nutritional sciences at the University of Wisconsin-Madison where he also completed postdoctoral training. Most recently, Mo was a professor of nutrition at Texas Woman’s University.

Mo’s publicized work includes his investigation into the cancer chemopreventive activity of dietary isoprenoids and mevalonate suppressors. He also studies the effects of green tea and fruit polyphenols on bone microarchitecture, polyphenols and obesity, and the use of medicinal plants and natural products for bone health. He holds three patents, supports research for bone health and prostate cancer, and is currently a member of five editorial
boards. He is a member of the American Society for Nutrition and the Society for Experimental Biology and Medicine. Mo has received the Texas Woman’s University Faculty Development Leave Award and the Scholarship Award for the TWU College of Health Sciences.

Preceding his new research role at Georgia State, Nomeli Nunez, Ph.D. was an assistant nutrition professor at the University of Texas, Austin. A native of Mexico, he earned his bachelor’s degree in biology at the University of California-Santa Cruz. Nunez followed by receiving a Ph.D. in pharmacology and toxicology at Washington State University, and finally a M.P.H from Johns Hopkins University focusing on health policy and management. He was also a post-doctoral candidate at the National Institute of Diabetes and Digestive and Kidney Diseases at the National Cancer Institute.

Nunez research focuses on determining the effects of obesity and alcohol consumption on breast cancer development and understanding how those factors make women vulnerable to cancer. His efforts have garnered over $3.3 million in research funding from the American Cancer Society, The Breast Cancer Research Foundation, the NCI-Center to Reduce Cancer Health Disparities, and many others. Published dozens of times, Nunez has contributed to studies relating to colon cancer, causes of tumor growth, the effects of obesity and diet, and alcohol consumption. His most recent awards include a teaching award from the Katherine Ross Richards Centennial Fellowship in Nutrition and the Fellows Award for Research Excellence by the National Cancer Institute.

Liang-Ching Tsai, Ph.D., assistant professor in the Department of Physical Therapy, came to Georgia during the previous year from the Rehabilitation Institute of Chicago and Northwestern University. Tsai was a post-doctoral fellow, focused on robotic rehabilitation. He completed his B.S. in physical therapy at National Taiwan University and received a M.S in human movement science at the University of North Carolina at Chapel Hill. Tsai earned a Ph.D. in bio kinesiology from the University of Southern California.

Tsai’s research centers on biomechanical injury mechanisms and developing effective interventions to prevent and treat lower extremity injuries. He received the Mary Switzer Research Fellowships and the Advanced Rehabilitation Research Training Grant, both from the National Institute on Disability and Rehabilitation Research in 2013 and 2011 respectively. Tsai has published on a variety of biomechanical topics including compressive loads on knees following ligament reconstruction and fatigue on knee kinetics during side-steps.