

GRADUATE STUDENT
RESEARCH MAGAZINE

ETSU SCHOOL OF
GRADUATE STUDIES

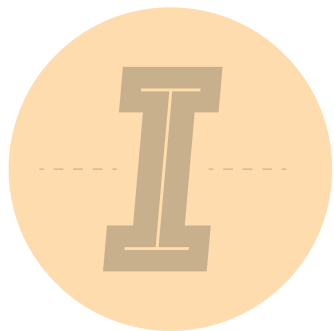
summer
2014

VOLUME 3
NO III



illuminated

MAGAZINE



summer
2014

ILLUMINATED MAGAZINE

FROM THE SCHOOL OF GRADUATE STUDIES

The East Tennessee State University School of Graduate Studies is proud to present ILLUMINATED, a magazine that showcases the excellent work of our graduate students and their faculty advisors.

There are over 2200 students enrolled in graduate programs at ETSU. Illuminated presents some of our students' research and creative works that make meaningful contributions to various disciplines, and contribute to our strong graduate programs. Illuminated features research and creative projects that are currently happening on campus, and provides updates on alumni of ETSU graduate programs.

Enjoy!

Celia McIntosh, Ph.D.
Dean

Karin Bartoszuk, Ph.D.
Associate Dean

Brian Maxson, Ph.D.
Assistant Dean



//GRADUATE STUDENTS & ADVISORS//



// Are you excited about your research and would like to share your hypothesis or findings? //

*You might be a perfect fit for Illuminated. There is more than one way to
// get involved //*

▶ **// For current graduate students and their advisors:**

Are you or one of your graduate students working on a culminating experience (e.g., thesis, dissertation, capstone)? Your research could receive additional exposure through *Illuminated* Magazine and help educate the rest of the campus about your department and program. This is a unique opportunity to get your work recognized!

▶ **// For current graduate students and their advisors:**

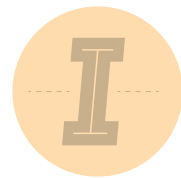
Did you or one of your students get accepted into an excellent doctoral program or receive an excellent career opportunity? We want to hear about it! Share your story in the "Where Are They Going?" section.

▶ **// For former graduate students and their advisors:**

Do you know an outstanding student who graduated from ETSU more than a year ago? We want to hear from them! The "Where Are They Now?" section features former ETSU graduate students who are now professionals in positions across the country.

Form available: http://www.etsu.edu/gradstud/documents/illuminated_nomination_form.pdf

For more information on nominating students or getting featured in *Illuminated*, please contact:
Dr. Karin Bartoszuk, bartoszu@etsu.edu



// CONTENTS //

SUMMER 2014 //

Correction: Spring 2014 Issue // Table of content page: Tonya Hensley, DNP (Family Nurse Practitioner)



// EDITORIAL STAFF



EDITOR

Karin Bartoszuk, Ph.D.
Associate Dean
School of Graduate Studies



WRITER

Brandy Nickels
Graduate Student
Literature and Language, M.A.



DESIGN / PHOTOGRAPHY

Tijana Stevanović
Graduate Student
New Media Studio, M.A.

Special Thanks to Larry Smith
for providing photographs for our
2014 Summer issue!

East Tennessee State University is accredited by the Commission on Colleges, Southern Association of Colleges and Schools to award baccalaureate, masters, specialist, and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097, telephone 404-679-4500, or Website: www.sacscoc.org with any question regarding the accreditation of East Tennessee State University.

ETSU in an AA/EEO employer. TBR- 260-070-14 .15M

06

Where are they now?
Featuring Annalee Tull

07

Sitcom Science
Using Social Science & Regional
Resources to Create a Unique Project
Professional Communication, M.S.
Graduate Student: Martin Becerra

09

Where are they now?
Featuring Derrick Angermeier

10

Understanding Grapefruit Enzymes:
The Potential for
Greater Health Benefits
Biology, Biomedical Science, M.S.
Graduate Student: Olusegun
"Adeboye" Adepoju

12

Teaching Children to Read: The Importance
of Knowledge Base for Pre-service Teachers
Early Childhood Education, Ph.D.
Graduate Student: Ruth Facun-Granadozo

14

The Impact of Lower-Body Strength
on Agility in Soccer
Sports Physiology and
Performance, Ph.D.
Graduate Student: Mark Chiang

17

Research Grant Awards
2014-2015





Annalee Tull
Professional Communication, M.A.
// 2014



How has your Master's Degree helped you?

It was a requirement for applying to many Ph.D. programs. I have also learned a great deal about the discipline while at ETSU and that persuaded me to pursue a career in academia.

What professors/advisors were instrumental in helping you?

Dr. Andrew Herrmann, Dr. Carrie Oliveira, and Dr. Wesley Buerkle.

What doctoral program will you be attending?

Louisiana State University, Department of Communication Studies, concentrating in Performance Studies.

Will you receive funding?

Yes, I will be fully funded for four years.

Why did you choose to pursue a doctoral degree?

I enjoy research and expanding the field of communication studies, especially in regards to performance. I have always been a performer and wanted to evaluate the implications of that and work with other performers.

It was a passionate and logical next step towards a career in academia while influencing the next generation of performance studies scholars and expanding the current research base of a fairly new study.

Will you pursue/expand on your topic you worked on during your Master's?

There will be elements of my Master's thesis in my doctoral program and dissertation, but the actual topic will take a varied look as it transforms into a nontraditional paper, subsequent performance of my thesis, and expansion into the dance world.

What advice would you give to current graduate students who would like to pursue a doctoral degree?

Do everything you can, even when you don't want to. The more you do and give back to the academy, the more it will give back to you. Simple costs and rewards exchange. Also seek out people who want the best for you. They will help you when you are striving for the best.



//SITCOM SCIENCE//

USING SOCIAL SCIENCE & REGIONAL RESOURCES TO CREATE A UNIQUE PROJECT

by Jordan Powers//



Left, Martin Becerra // Right, Shara Lange, MFA

Photo by Sara de Miguel

When Martin Becerra, a master's degree student in professional communication, arrived at ETSU from Spain, he knew he wanted to combine his love of situational comedies (sitcoms) with his communication studies. "I had an idea for a sitcom about a guy faking a coma, but I wasn't sure if I'd be able to do anything with it," he said. He chose to study communication in conjunction with his media production background in order to enhance his communication skills as a producer.

Shara Lange, Martin's faculty advisor, was excited that Martin took on this ambitious project. "It was doubly hard here because we have a little film department that is just getting started. Martin had to work extra hard, but because he has a great attitude and is dedicated, he made this project a success," she said. Martin's thesis project unfolded into three parts. The first part included a survey that he created to gauge which types of characters audiences prefer in sitcoms.

"I conducted face-to-face and online surveys that measured humor, likeability, and social deviance." He found that viewers like socially deviant characters because they constantly break the rules and surprise viewers. These findings guided Martin as he created the characters for his sitcom. "I found you needed to have a balance between socially deviant characters and normal people." He incorporated two socially deviant characters into his script.

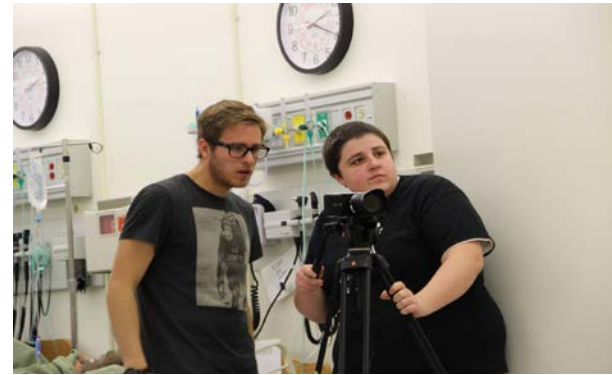
After writing his sitcom, which he titled Not Dead At All, Martin moved into the second part of his project -- production. First he had to find a crew to help him shoot the pilot episode of his sitcom. "I was really lucky and got an amazing crew," he said. A 17-person crew comprised of faculty, undergraduate and graduate students assisted Martin. He held three casting calls to select actors for his production. He also scouted for locations and gained sponsorship from local restaurants to feed his crew. "It's a long process, but it's worth it," he said.

// "I had an idea for a sitcom about a guy faking a coma, but I wasn't sure if I'd be able to do anything with it." //

Martin's crew had various levels of experience, and he helped train and supervise all crew members. "He was really generous with everyone; the way he worked with people on his project was amazing," Ms. Lange said. Some crew members were both behind and in front of the camera. Martin shot his sitcom in four days after months of planning. He noted that this part of the process was his favorite. "I like all the parts, but the funniest part is when you are shooting, when you suddenly say "action" and the characters are out of your head and are real." The third and final part of Martin's project was creating "the bible" for his sitcom. The bible is a document made for television studios to help creators sell their ideas. It explains the sitcom's characters, their relationships and the possible plot lines that can develop over the seasons.

"I am very proud of it," said Martin. He incorporated several Hispanic characters into the sitcom and hopes when the sitcom is crafted for television it will be in both Spanish and English. He plans to sell his sitcom to a major television company and hopes to one day see it on air. "He really pushed himself, and we can't wait to see where this project goes," said Ms. Lange.

"I think he is a great example of the best graduate student we can have here at ETSU. We have great potential, and Martin maximized the resources available to him." Martin won the Communication Department's Outstanding Graduate Creative Achievement Award. He is moving to New York and plans to get a job in television production. "I am going to go there, be persistent and charming until I get my first opportunity, and I will start climbing," he said. •



Derrick Angermeier
History, M.A. (European History)
// 2013

Where do you work or go to school?

University of Georgia History Ph.D. Program

What is your research about?

I study various aspects of Nazi Germany, but primarily am expanding on the work I accomplished in my Master's thesis which focused on Nazi ideology. My research is at an early stage so while I do not have a definitive path for the dissertation, I firmly believe that reconstructing Nazi ideology will offer a new, fascinating, and troubling view of one of history's darkest moments.

What's your favorite part about the research?

I cannot say that there is any aspect of studying a dark and twisted thought system I can consider enjoyable, but when I come across Nazi ideological sources that focus on the Volksgemeinschaft (National Community) I cannot help but see the foundations of what became a coercive ideology of mass-extinction. Finding such resources is troubling, but each source brings me closer to understanding the thought process behind the Third Reich.

How has your Master's Degree helped you?

Specifically, having a Master's Degree helped me in two significant ways. First, the M.A. provided me the opportunity to prove I could do the work necessary to succeed in the world of professional history. ETSU's History Department had a strong focus on developing their students into professional historians and I took full advantage of those opportunities. While at ETSU, I presented at five conferences, led seven guest lectures, wrote an M.A. thesis, and earned acceptance letters to three Ph.D. programs, none of which would have been possible without the skills and guidance ETSU offered. Second, ETSU afforded me the opportunity to assist, as a Tuition Scholar and then a Graduate Assistant, six different History courses in the four semesters of my enrollment. This experience has allowed UGA's History Department to give me a promotion of sorts. Typically UGA graduate assistants spend their first year grading. However, the experience I earned at ETSU helped the History Department's decision to change my role from a grader to a leader of discussion sections. These discussion sections were attached to large intro-level history courses and featured me guiding two sections of 25 students through specific, complex topics and documents in greater detail than the main lecture allowed. My experience at ETSU helped me earn the responsibility of leading my own discussion sections and interacting with students ahead of schedule, which for me as a Ph.D. student who puts a premium on teaching is a considerable honor.

WHERE ARE THEY / *now?* //

In these two ways, the History M.A. at ETSU has helped me tremendously on my path to becoming a professional historian.

What advice would you give to current graduate students?

I would say that any graduate student needs to take full advantage of the professors in their department. I cannot say enough good things about the professors at ETSU's History Department and the numerous ways they enabled me to succeed in this profession. Every professor I was assigned to for my Assistantship afforded me the opportunity to guest-lecture. Dr. Daryl Carter was instrumental to my American History minor field. Dr. Brian Maxson, as Graduate Coordinator, introduced me to many aspects of professional history and allowed me the distinct pleasure of maximizing my classroom opportunities. Finally, Dr. Stephen Fritz, my thesis chair, was of fundamental importance to not only the accomplishment of my thesis, but reviewing conference papers and Ph.D. writing samples all the while guiding me through the myriad difficulties of studying the controversial Third Reich. If I had just gone to classes and interacted with professors at the bare minimum I would likely not be in UGA's Ph.D. program, much less doing as well in it as I am presently.

Anything else you'd like to share?

The final thought I would like to share is one of gratitude. I came out of UGA's undergraduate program in 2009 and although I was accepted to two M.A. programs, scholarships were unavailable. I spent two years working an I.T. job and substitute teaching to save up for Graduate School, jobs that offered few opportunities to grow as a historian. When I reapplied to M.A. programs in 2011, ETSU gave me a chance for which I am eternally grateful. Being in a Graduate Program is truly a privilege, not a right. I could easily be doing something drastically unrelated to History, but thanks to ETSU I am doing well in the Ph.D. program of a high-level research university. Once given a chance, I worked my hardest to prove that I deserved that chance. I squandered no opportunity, explored every avenue, and spent a considerable amount of time in my professors' offices. I encourage all students presently engaged in graduate work to take full advantage of their opportunities if not for their own personal gain then for the sheer fact that their opportunity came at the expense of someone else's, a realization I have been on both sides of. I also encourage the alumni of ETSU's Graduate School to promote ETSU as much as they can, even if it is just in casual conversation.

Anything you can do to promote ETSU can only help boost enrollment and benefit future scholars, which will only make your degree all the more impressive. In closing, I want to formally thank ETSU's History Department and the Graduate School for giving me a chance. I will put all of my efforts toward demonstrating, through my work at UGA and beyond, that ETSU's vote of confidence in my candidacy was rightly placed. •

// UNDERSTANDING GRAPEFRUIT ENZYMES THE POTENTIAL FOR GREATER HEALTH BENEFITS //



by Brandy Nickels //

Olusegun Adeboye Adepoju came to ETSU from Lagos, Nigeria to study Biology, but he never expected to gain experience with advanced lab equipment and techniques and to be a part of important new developments in research regarding grapefruit enzyme adaptability. During the last two years, Adeboye has pursued a Master's Degree in Biology with a concentration in Biomedical Science.

His thesis began as a natural contribution to the current research under a National Science Foundation Grant directed by Dr. Cecilia McIntosh. The members of the research team are studying the effects of various amino acids on how a grapefruit enzyme works. The teams' anticipation is that by studying the function of the enzymes, they may contribute towards future efforts for custom-designing enzymes to make products for human consumption. Grapefruit is widely known to have various health benefits, and the flavonoids found in the grapefruit and all other plants have been linked to the prevention of many illnesses. Over 8,000 flavonoid compounds can be found in nature and vary in amount and structure. "They protect us from free radicals, which can lead to stress,

which can lead to cancer...they help mop up free radicals from our system," Adeboye said. His first experiences in Dr. McIntosh's biology lab were not what he had expected. "I was nervous regarding the lab work," he said in reflection on his first days in the biology department. He had the knowledge base, but had never worked with much of the equipment. He worked with Dr. McIntosh on the basic skills he needed. He learned to use pipettes, to operate the autoclave and PCR machines, and to work with incubators. Some of the processes he learned included protein isolation and purification, structural analyses and modeling of proteins, and electrophoresis. After spending time learning the intricate processes he would need to use, he was confident in his ability to begin research with the team. He hypothesized that he could create a new mutation of a grapefruit enzyme that would develop a preference for a different substrate or position for sugar attachment to flavonoids. By changing the amino acid in his enzyme, he would create a mutant protein and be able to compare its reaction with that of the original enzyme. Homology Modeling, the prediction of a mutant protein enzyme structure based on previously established models, was utilized when

Adeboye chose the enzyme and the amino acids for his research. He chose three amino acid residues based on their different chemistries and characteristics. He changed the three different amino acids in his enzyme separately to examine the reaction and level of compatibility.

His first two attempts resulted in the mutant enzymes losing all function with significant findings showing the potential impact of changing one amino acid. The third attempt showed sustained function of the enzyme at 65%. This mutant enzyme showed a preference for a different flavonoid compound.

Although his initial hypothesis was that the mutant proteins would attach sugars at different points and behave differently, he found that his active mutant enzyme attached the sugar at the same point. The first two trials indicated, however, that changing amino acid residues can stop activity of the enzyme. The third trial showed that a mutant enzyme can have its own preference for specific amino acid types. This preference indicates that researchers may be able to make new enzymes.



Photo by Larry Smith

Left, Olusegun "Adeboye" Adepoju // Right, Lisa Carter

Dr. McIntosh said of Adeboye, "He's the first graduate student to focus a thesis on this aspect of the grant." He paved the way for other students, like undergraduate summer research student Lisa Carter, to expedite the process of testing the effects of changing amino acids. His work during the last two years has allowed other students working in the lab to complete the same process in just a few months.

Lisa attends Vanderbilt and is at ETSU for a summer internship funded through the National Science Foundation's Research Experience for Undergraduates program during which she has been able to expand Adeboye's work and branch out into changing other types of amino acids. The team is comprised of three undergraduate and four graduate students as well as one post-doctoral researcher. Dr. Shivakumar Devaiah (post doc) has been a mentor and supervisor for the team under Dr. McIntosh's guidance and supervision, and he conducts his own research full-time in the lab. The team holds weekly meetings during the school year to present updated research findings, discuss future directions, and discuss journal articles.

Adeboye already presented his research at the Phytochemical Society of North America in August, 2013 and presented again in August 2014. He has also presented at the Appalachian Student Research Forum and has shared his findings at a departmental seminar at ETSU. He was accepted

to a Ph.D. program at Virginia Tech in Plant Biochemistry in the Molecular Plant Sciences in fall 2014 and feels prepared for the research demands because of the skills he acquired through his experiences during the past two years at ETSU. ●



Cecilia McIntosh, Ph.D., Dean, School of Graduate Studies

Photo by Larry Smith



//TEACHING CHILDREN TO READ: THE IMPORTANCE OF KNOWLEDGE BASE FOR PRE-SERVICE TEACHERS//

by Brandy Nickels//

Ruth Facun-Granadozo began the Ph.D. in Early Childhood Education with many questions and concerns about literacy instruction. Before coming to ETSU, she began teaching children to read in the Philippines and used the outdated resources available for literacy instruction. The best textbooks for literacy instruction were from 2002, and her school did not have funds available to buy the latest editions. She also trained teachers based on the methods she used and considered successful, but she had questions about where teachers should start in teaching beginning readers. The materials featured popular best practices for teachers but provided no guidance on literacy instruction. Her goal was to learn how to train teachers to teach reading effectively in various languages. She was aware that her questions about the foundations of literacy learning were relevant questions for beginning literacy teachers everywhere.

After coming to ETSU, Ruth worked with Dr. Kathryn Sharp to identify the aspects of literacy instruction that were most misunderstood by pre-service and beginning reading teachers in the US and to develop a topic for her dissertation based on improving those aspects, the chosen areas being morphemic awareness, phonemic awareness, and phonics.

Dr. Sharp states that nation-wide, teachers are being retrained in the areas of phonemic and morphemic awareness because of a perceived lack of knowledge and unsatisfactory performance on evaluations. The state evaluates teachers based on their performance in teaching the state curriculum standards, so poor performance in such an important part of literacy indicates that the most basic concepts behind reading are not being communicated well enough to first and second grade learners in public schools. Retraining teachers is costing states nationwide millions of dollars that could otherwise be used toward any number of programs and learning opportunities. Ruth stated, "Phonemic awareness, phonics, and morphemic awareness are all foundational

skills for learning to read, spell, and comprehend." Without knowledge of these, many teachers are making mistakes in explaining reading concepts to children. The inconsistencies between spelling and pronunciation in most English words require teachers to be aware that young readers may try to generalize pronunciation rules for certain morphemes or parts of words. Teachers often find difficulty in explaining the differences between spelling and sound. In her initial research, Ruth discovered that the concept of expert blind spot proposed by Petrosino and Nathan (2003) is manifested by her participants. She explained, "since it [reading] became very automatic for us, we are no longer able to see" how the process works. She emphasized the inability for native speakers of a language to see how their language works at the most basic level. This phenomenon is common, because learning of a native language happens without attention to the details. Teachers cannot simply think back to their own first experiences and must consult the current best practices for teaching a skill they acquired long ago.



Left, Dr. Kathryn Sharp // Right, Ruth Facun-Granadozo

// Ruth's goal was to investigate pre-service teachers' descriptions of their experiences as they learn the concepts of phonemic awareness, phonics, and morphemic awareness. //

She stated, "If teachers have that expert blind spot, they can no longer design developmentally appropriate learning experiences." To combat the blind spot, pre-service teachers must learn the concepts behind their own linguistic knowledge.

Literacy courses are required for pre-service reading teachers so that they understand how children learn to read for the first time. Phonemic awareness, morphemic awareness, and phonics are central concepts in literacy textbooks, although many teachers are retrained after starting to teach full-time. Ruth's goal was to investigate pre-service teachers' descriptions of their experiences as they learn the concepts of phonemic awareness, phonics, and morphemic awareness. Further, she wanted to see how their experience affected self-perceptions about their ability to teach children to read.

She utilized multiple case studies consisting of 8 pre-service teachers taking their first Literacy Methods course. The participants utilized an online module developed by Dr. Sharp which contained tutorials and tests focused on phonemic awareness, phonics, and morphemic awareness. The participants were tested at intervals during the semester and were required to score at least 90% accuracy in order to get credit for the course. Ruth conducted interviews with each participant and asked for feedback about their progress. She found that most subjects understood the importance of learning the concepts, but they also shared feelings of anxiety about the content and stated that they were not comfortable with their understanding of the concepts. In addition, many pre-service teachers in the Early Childhood Education program expressed anxiety about putting these concepts to use in the classroom.

As they progressed through the assignment, every pre-service teacher reported feeling more confident in their knowledge. Many participants who were initially hesitant about the module and doubtful that they could understand the concepts felt that their eyes had been opened to reading in a new way and that they could teach the concepts with more confidence. Not only did morale improve, but every participant scored higher on the module test from the first to the last testing period. The module and the repeated testing opportunities gave the participants the ongoing feedback and correction they needed in order to master the concepts. Ruth's research is ongoing, and she hopes to examine how the knowledge gained from the assignment will impact student teaching experiences for participants. She hopes to



observe the participants in their student teaching experiences and evaluate their ability to use phonemic awareness, phonics, and morphemic awareness in the classroom. She also hopes to interview them and gain insight into their feelings about teaching for the first time. Her research highlights the importance of teacher knowledge base and pre-service preparation for teaching reading skills. A prior knowledge base and extensive teacher training is essential for maintaining successful students and effective teachers. ●

-Reference-

Nathan, M., & Petrosino, A. (2003). Expert blind spot among pre-service teachers. *American Educational Research Journal*, 40(4), 905-928.

Photo Michal Zacharzewski

//THE IMPACT OF LOWER-BODY STRENGTH ON AGILITY IN SOCCER//

by Brandy Nickels//

Mark Chiang began his studies at ETSU as a part of a unique program. He began looking for opportunities to study sports performance because he was a strength and conditioning coach for Taiwan's national women's basketball team. His position focused on improving performance of athletes by developing strength and conditioning programs. He initially came to ETSU to attend a sport science conference hosted by ETSU's Center of Excellence for Sport Science and Coaches' Education in 2010, but applied and was accepted into the new Ph.D. program specializing in Sports Physiology and Performance, developed by Dr. Michael Stone, which was unique among the programs available in the United States. "Dr. Stone is the reason why I'm here," he

said. Mark became the strength and conditioning coach for the ETSU men's soccer team as a part of a Graduate Assistantship.

His goal as a sport scientist was to improve game performance by creating custom strength training workouts and conditioning drills. For his dissertation, he explored how muscular strength and power affects agility in soccer athletes. His topic came from the doubts many people have about the impact of strength training for soccer athletes. He stated that coaches often have questions about the use of valuable time in the weight room, and if the time spent there is worth the results during competition. He wanted to prove that strength positively impacts agility, or the ability to change directions quickly.

He worked under the supervision of Dr. Kimitake (Kimi) Sato to develop the techniques and instrumentation used to properly measure soccer players' change of direction performance.

Mark set out to discover how he could prepare athletes for competition by increasing their agility quickly and effectively. He needed to measure certain strength characteristics in order to study how muscular strength and power impact an individual's agility. For this purpose, he used the monitoring program created by Dr. Stone which involved testing for athletes twice per semester, in addition to the completion of health questionnaires.

The tests he developed along with Dr. Sato were included in the monitoring

program and were the source of data for his dissertation. One of the three goals of his research was to examine how the differences in strength between dominant and less dominant sides of the body correlated with an athlete's agility. He also wanted to know if overall strength made a difference.

The first part of his research revolved around the athlete's dominant side. He classified the 24 athletes in his sample group as more asymmetrical if they had at least a 6% difference in strength between the right and left side of the body. Athletes who had less than 4% difference were considered more symmetrical. The test results showed that the athletes who were more asymmetrical in strength on right and left sides performed the same as more symmetrical groups. The magnitude of asymmetry did not affect the final performance of the athlete.

In the monitoring program, Mark tested the athletes from the men's and women's soccer teams. The battery of tests included body composition

measurements, hydration status, various types of vertical jumps, isometric mid-thigh pull, and sprints using a force plate. The isometric mid-thigh pull test measured the amount of force produced as an athlete pulled on a stationary bar while standing on a force plate. This test measured the amount of force an athlete could produce. The force plate was also used in the vertical jump tests to measure how much force was applied during various jumping maneuvers.

A force plate measures the push and pull as a person moves while standing on it. When athletes take off after making contact with the force plate, it measures the amount of force they produce as they push off.

In the change-of-direction test, athletes ran at top speed for five meters, "cut," or stopped to change directions on the force plate, and then sprinted back to the starting point. As they made the cutting motion, the plate measured the amount of force, the number of milliseconds their feet were on the plate, and the direction of the force applied. ●



Left, Dr. Michael Stone // Right, Mark Chiang

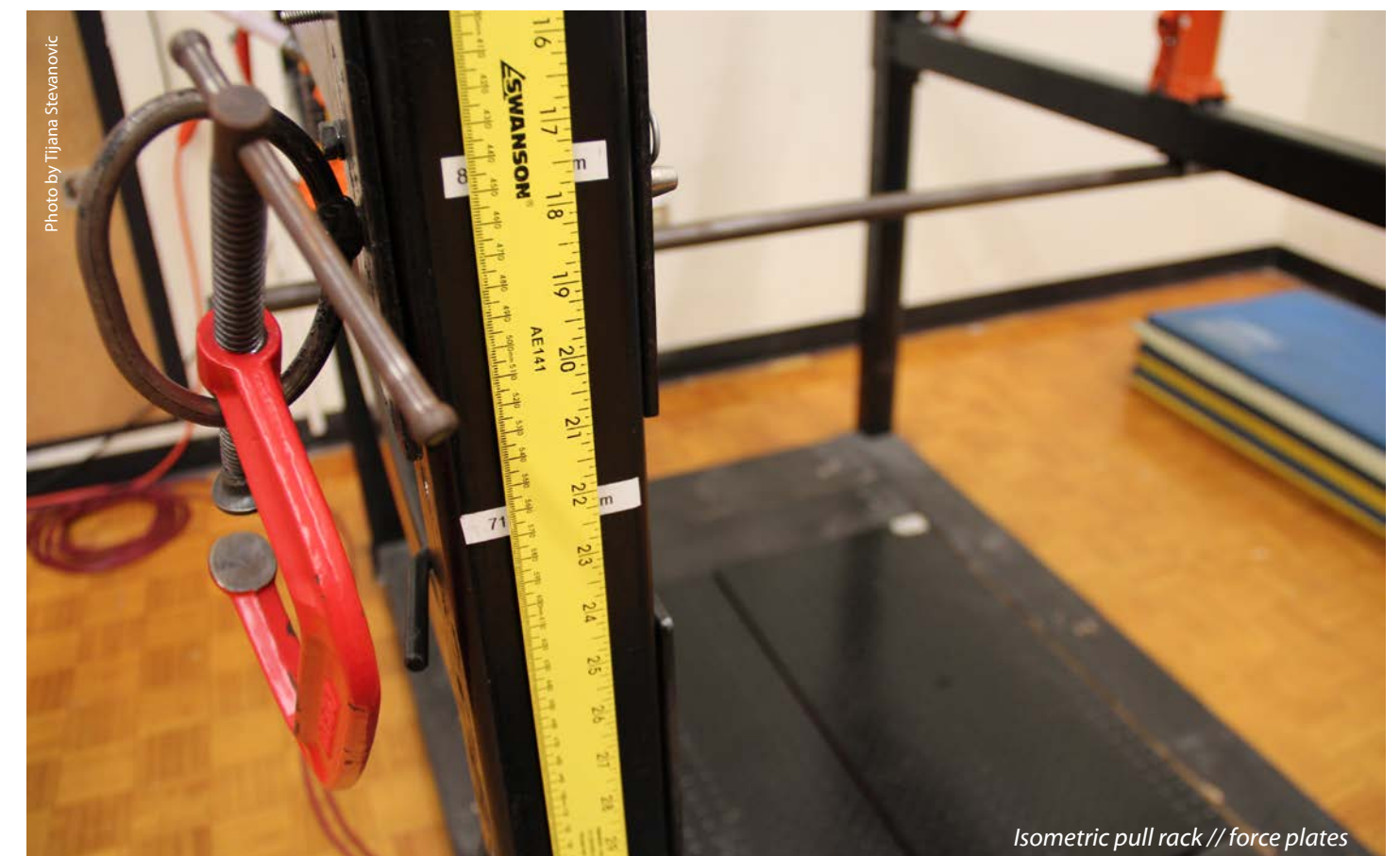


Photo by Tijana Stevanovic

Isometric pull rack // force plates

Their acceleration was measured at three meters so that Mark could not only measure their initial acceleration but also their reacceleration after cutting. Mark included members of the women's soccer team for this test in order to compare the performance between sexes. He conducted the same sprint test for female soccer athletes and normalized the data by incorporating physical size, weight, and muscular differences between males and females.

// His goal as a sport scientist was to improve game performance by creating custom strength training workouts and conditioning drills. //

After analyzing data from all of the observations, Mark found a positive correlation between the amount of force generated and the overall agility of the athlete. This means that lower body strength and power, regardless of gender, positively affect an athlete's ability to move and change directions quickly.

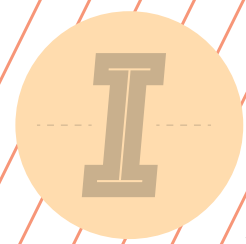
When he compared male and female athletes in the change-of-direction test, Mark was surprised to find that although the amount of force generated was similar in both groups, male athletes tended to stay on the force plate longer during the cutting maneuver. The extended foot contact time of males correlated to their faster acceleration and better overall performance. The strategy allowed them to

produce additional force and prove more agile. His research not only impacts the ETSU soccer program but it is also applicable to all sports as it focuses primarily on agility. In most sports, athletes are required to make quick decisions and change directions often. The cutting maneuver is the action of changing directions, and the greater the strength of the athlete, the faster he/she can move to steal the base, make the layup, or make a first-down. His work reinforces the importance of strength training for all athletes, even if it requires designated time away from the game. Dr. Stone, who supervised the research, emphasized the program's uniqueness. "We [the program attendance] could easily double, attracting people from all over the country," he said.

The Ph.D. in Sports Physiology and Performance was the first of its kind and serves as a model for other institutions. When it was created, it was the only program that investigated sport science within current teams and athletes. Mark's questions were perfect for the program. As a part of the program, Mark took a leadership role when he decided to bring his new colleagues and knowledge to his home country. In addition to his work with the athletic teams on campus, Mark coordinated a conference in Taiwan with over 200 attendees last year.

Many ETSU faculty members attended, and the conference focused on both theoretical and practical aspects of sport physiology and performance. He has published three articles and has presented his research. Mark graduated and is currently a post-doctoral researcher at National Taiwan Sport University, which is located in Taoyuan, Taiwan. ●

RESEARCH GRANT 2014/ 2015 AWARDS



***Claude Christopher
Green***
**Ph.D. Environmental
Health Sciences**

Title: Modeling Sources of Fecal
Pollution

Dr. Phil Scheuerman, Committee
Chair

Parker Dabbs
M.S. Biology

Title: Identifying Transcriptional
Regulators of Triacylglycerol
Biosynthesis in Plants

Dr. Aruna Kilaru, Committee Chair

Bridget Jeter
Ph.D. Psychology

Title: The Role of Spirituality, Hope,
and Perceived Stress on Health
and Well-being in ALS Caregivers

Dr. Jon Webb, Committee Chair

Derek Murrell
Ph.D. Biomedical Sciences

Title: The Influence of Genetic
Variations and Age on the Blood
Levels and Side Effects of Stribild

Dr. Saeidreza Harirforoosh,
Committee Chair

Md Mahbubur Rahman
Ph.D. Biomedical Sciences

Title: Characterization of
Acyltransferases Involved in TAG
Biosynthesis in Avocado Mesocarp

Dr. Aruna Kilaru, Committee Chair

Tyler Speaks
M.S. Biology

Title: AlgR Controls the Expression
of rsmA in Pseudomonas
Aeruginosa

Dr. Chris Pritchett, Committee
Chair

Rebecca Wilson
Ph.D. Biomedical Sciences

Title: Investigation of Non-
transcriptional Markers of
Circadian Rhythms in Orb-
weaving Spiders

Dr. Thomas Jones, Committee
Chair

Hui Yan
Ph.D. Biomedical Sciences

Title: A Novel Role of Beta-arrestin2
in Sepsis-induced Myocardial
Dysfunction

Dr. Deling Yin, Committee Chair

MAKE A DONATION TODAY!

Graduate Studies // ETSU Advancement, Box 70721, Johnson City, TN 37617-1710

YES! I would like to donate to the School of Graduate Studies.

Name:

Address:

City: State Zip

Telephone: () E-mail

Check/ money order payable to: School of Graduate Studies, ETSU

VISA MasterCard Discover AMEX

Card No. Exp. Date

Security Code (3/4 digits on the back of card)

I wish to make a donation of \$

Make your donation online at <http://www.etsu.edu>

1. Click "Alumni"

2. Click "Give to ETSU"

3. Select "School of Graduate Studies"



illuminated

MAGAZINE



SCHOOL of
GRADUATE STUDIES

EAST TENNESSEE STATE UNIVERSITY

Box 70720, Johnson City, TN 37614-1710
<http://www.etsu.edu/gradstud>
Phone (423) 439-4221