

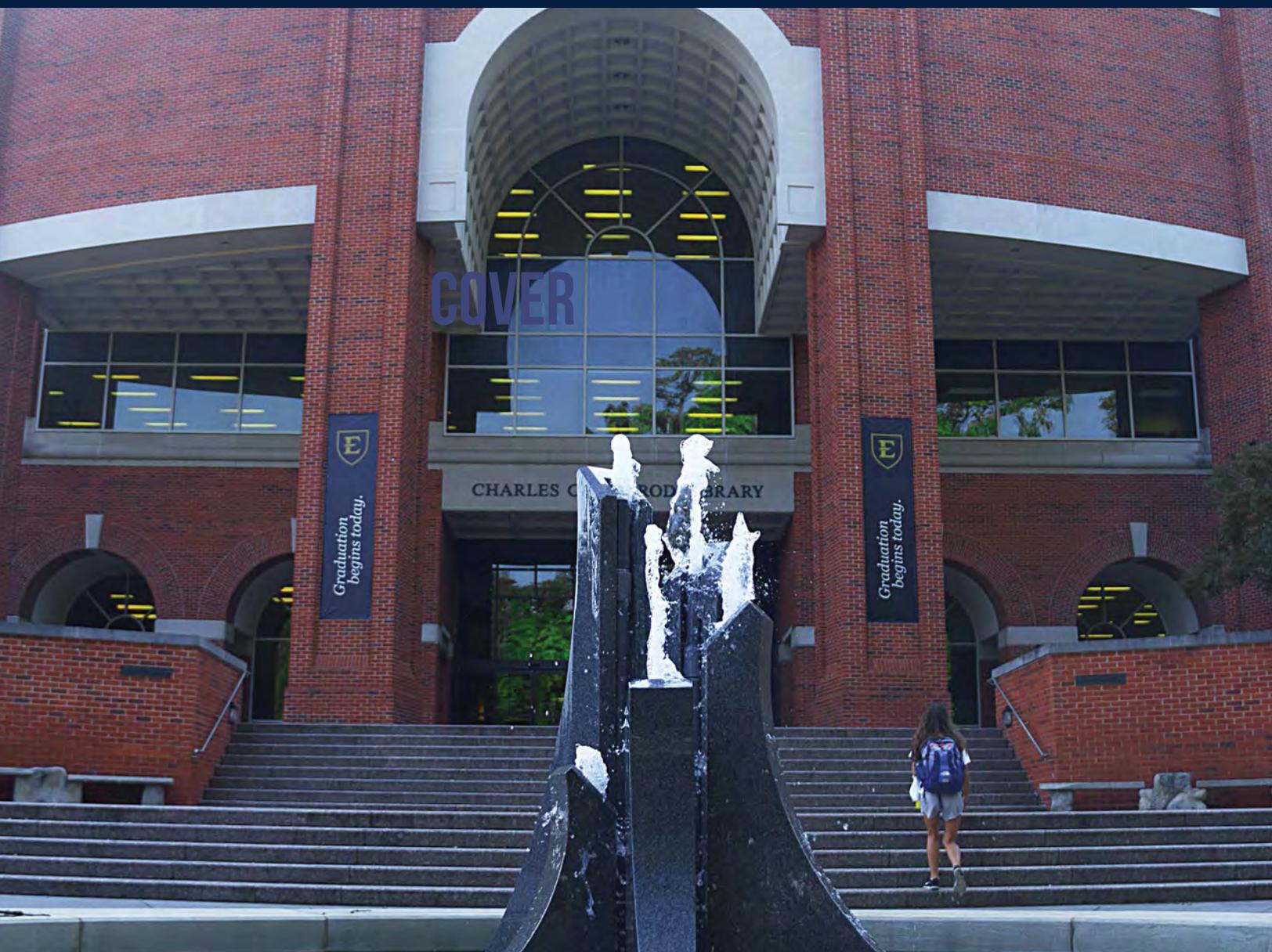
ETSU SCHOOL OF GRADUATE STUDIES

FALL 2015

# ILLUMINATED

GRADUATE STUDENT RESEARCH MAGAZINE

MAGAZINE



COVER

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*Graduation  
begins today.*



*Graduation  
begins today.*

VOLUME 5, ISSUE 1

Correction: Spring 2015 Issue // Top 10 most downloaded Thesis/Dissertation: Dr. Morgen Houchard... He is currently...

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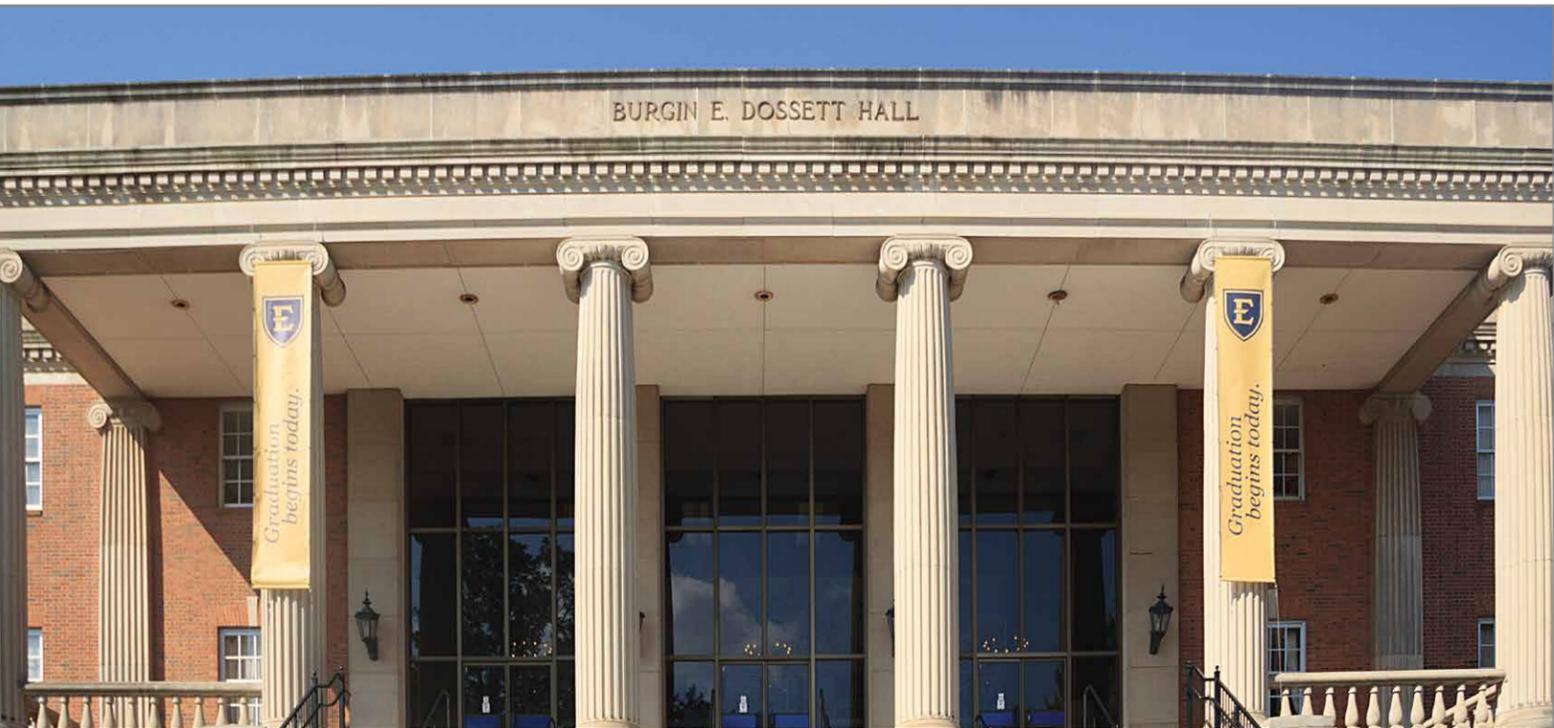
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## FROM THE SCHOOL OF GRADUATE STUDIES

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!

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## 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](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](mailto:bartoszu@etsu.edu)*



**WENDEE WHITE**

*Early Childhood Education, M.A., 2015*

**WHAT DEGREE DID YOU EARN AT ETSU?**

I earned a Master of Arts in Early Childhood Education in 2015. I was a graduate student in the Department of Teaching and Learning.

**CAN YOU EXPLAIN YOUR RESEARCH PROJECT OR CULMINATING EXPERIENCE?**

My study explores the relationship between an Affective Instructional Design (AID) and children's attitudes toward math and math learning. Participants included fifteen kindergarten children at a university kindergarten through twelfth grade laboratory school located in East Tennessee. I employed a pretest-intervention (AID) and posttest design. Data collected from attitude surveys (both prior to and after the intervention) and baseline data collected from non-participant video observations of math learning and math attitudes during thirteen math lessons were analyzed. A significant positive correlation was found between attitude and math learning level. Additionally, significant differences were found between the baseline (pre-intervention) mean score and the final intervention score for both math attitude and math learning. These findings suggest AID could be one route to supporting educators in establishing quality learning environments that promote positive attitudes and meaningful learning in mathematics.

**WHAT WAS THE MOST SURPRISING ASPECT OF YOUR RESEARCH EXPERIENCE?**

The most surprising aspect of my research was the immediacy in the children's responses to the affective instructional design. Even from the initial intervention lesson, the impact of AID was positive on the learning process. Children took ownership of the math language, expressing enthusiasm for content, and demonstrating real-world connections. Children came to class ready to share how they observed mathematics in their home environment. The day following an intervention lesson about directional language, a child came to class and excitedly wanted to share an experience.

Another surprising aspect of the research was the positive impact AID had on the teacher. By lesson three of the intervention, the teacher was reporting how much fun she had teaching math, which was a subject that she had previously found a challenge to teach creatively. She expressed surprise at how much content she was covering and the quality of learning among the children.

I was amazed at the powerful effect of AID. The teaching design led to an increase in quality and quantity of mathematical teaching and learning as well as an increased enthusiasm for mathematics in the classroom environment.

**WHAT WAS YOUR FAVORITE ASPECT OF YOUR RESEARCH EXPERIENCE?**

I really enjoyed multiple aspects of the research experience including: reading interesting articles to construct a literature review, being in the field, coding video recordings, completing the data analysis, and learning how to report the findings. The entire experience was challenging and very rewarding. The experience definitely gave me the 'research bug'.

**WHAT IS YOUR CURRENT POSITION, AND WHAT DOES THE POSITION ENTAIL?**

Currently, I am preparing to start a one-year position with Newman University, located south of Birmingham in the United Kingdom. I will be a lecturer in primary education for trainee teachers preparing to enter the field. Also, I will be visiting and supporting trainee teachers in their school work placements.

**WHAT IS THE MOST INTERESTING ASPECT OF YOUR POSITION?**

I think teaching is one of the most rewarding, yet challenging professions. I am very excited to be working with aspiring teachers, and I am looking forward to supporting their development creating a high quality teaching and learning environment. Through this, I hope they can experience the daily joy, and rewards of working with children while feeling confident in facing the ongoing challenges that are a part of the field.

**HOW DID YOUR EDUCATION AT ETSU IMPACT YOUR LIFE AND CURRENT POSITION?**

Because of my educational experiences at ETSU, I have a new direction for my career. I am looking forward to continuing my research and working with trainee teachers to promote quality teacher formation. I hope to earn a Ph.D. with my continued research involving affective domain of teaching and learning. These goals are possible because of the educational opportunities offered by ETSU.

**// WHERE ARE THEY NOW? //**



## GENE C. COUCH, JR.

*Educational Leadership, Ed.D.*

*Post Secondary & Private Sector Leadership, 1997*

### WHAT DEGREE DID YOU EARN AT ETSU?

I graduated with Ed.D. Educational Leadership – Post Secondary & Private Sector Leadership in 1997.

### WHAT IS YOUR CURRENT POSITION, AND WHAT DOES THE POSITION ENTAIL?

As President of Virginia Highlands Community College (VHCC), I am the Chief Executive Officer and responsible for the overall effectiveness of the organization. Virginia Highlands Community College is one of the 23 colleges within Virginia's Community College System and is a comprehensive community college serving the residents of Washington County, the western portion of Smyth County, and the City of Bristol. Annually, the College has an enrollment of approximately 3,500 students and approximately 1,000 non-credit students. VHCC offers more than 70 programs for students leading to the associate degree, diploma, certificate or career studies certificate.

### WHAT IS THE MOST INTERESTING ASPECT OF YOUR POSITION?

I have been fortunate to live the Confucius quote, "Choose a job you love, and you will never work a day in your life." Community colleges serve a heroic purpose in higher education. We are a place where a person's future can be shaped by ambition, talent, and effort. This visceral connection, as well as the democratic nature within the community college, has caused me to develop a special connection to this unique enterprise over 30 years ago. Community college changes lives and builds communities. More specifically, I enjoy being around smart people who care deeply about their work. Additionally, I love developing the systems and processes to positively impact our core functions of teaching, learning, and community building. One of my favorite quotes about leadership is from John Quincy Adams, "If your actions inspire others to dream more, learn more, do more, and become more, you are a leader." As the President of VHCC, I hope that my actions inspire others to dream more, learn more, do more and to become more. It is an honor to be the President of Virginia Highlands Community College and engaged in this important work.

### HOW DID YOUR EDUCATION AT ETSU IMPACT YOUR LIFE AND CURRENT POSITION?

All leaders are shaped by their own heredity, culture, education, and experience. I am no different. As noted previously, I received my Doctorate from

ETSU. I did this while living in North Carolina, and it required me to drive two hours one way. I share this with you not to illustrate a story of sacrifice, but to underscore how much I thought of and valued the experience. I had a great experience while at ETSU, and I want to acknowledge and thank my major professor, Dr. Terry Tollefson, for his part in my journey. Quite frankly, without my doctorate from ETSU, my ability to realize this position would not have been possible.

### DO YOU HAVE ANY ADVICE FOR CURRENT OR FUTURE GRADUATE STUDENTS?

We do not spring fully formed into the world ready for success, but are individuals shaped by the people in our lives, by the education, by the experiences, the opportunities, and the choices we make. Therefore, learn, learn, and learn. Treat each day as a new learning opportunity. Additionally, be willing to work hard – I really like the Tim Tebow quote about this: "Hard work beats talent when talent doesn't work hard."

I would also like to share some random thoughts about success:

Do your job well.

Think deeply about your work.

Learn from others – identify mentors.

Learn from mistakes, and they don't all have to be yours.

Surround yourself with smart, capable, positive people.

Success is a journey – not a destination. So enjoy your journey.

Thank you ETSU, and Go Bucs! ■

### DO YOU HAVE ANY ADVICE FOR CURRENT OR FUTURE GRADUATE STUDENTS?

Yes. The more you put into your educational experiences, the more you will get out of them. Share your thinking, challenge what you read,

discuss what you hear, and reflect on your experiences. Challenge yourself to learn, learn, learn! Thank you ETSU, Dr. Amy Malkus, Mary Myron, and the Department of Teaching and Learning! ■



## ARIEL FORD

*Early Childhood Education, M.A., 2008*

### WHAT DEGREE DID YOU EARN AT ETSU?

I earned an M.A. in Early Childhood Education in December 2008. My thesis centered on training teachers in implementing Emergent Inquiry Curriculum.

### WHAT IS YOUR CURRENT POSITION, AND WHAT DOES THE POSITION ENTAIL?

I am the Child Care Resource & Referral Director at the Buncombe Partnership for Children in Asheville, North Carolina. My team works with childcare programs to improve their quality and to support the capacity of teachers, directors, and owners. We offer trainings in a collaborative, reciprocal relationship – based environment.

### WHAT IS THE MOST INTERESTING ASPECT OF YOUR POSITION?

I love being present as early childhood educators realize their own professional path. Watching someone come into his or her professional self is such a joyful occasion to behold. My work gives me the great joy of supporting the ever-changing needs of my community and being challenged to work alongside community partners to support a healthy, engaging world for children birth-to-5 years old and their families.

### HOW DID YOUR EDUCATION AT ETSU IMPACT YOUR LIFE AND CURRENT POSITION?

I decided on ETSU for my graduate studies because the professors were active participants in the communities, and they were actively working on balancing both personal and professional lives. The examples these professionals living within a community have shaped how I live in my professional life. Also, my MA in Early Childhood Education has allowed me to become a county-level leader in my field, and to bring a sense of reciprocal learning to my community. I could not have been happier with my education; I still call on my professors for mentorship, advice, and collegiality.

### DO YOU HAVE ANY ADVICE FOR CURRENT OR FUTURE GRADUATE STUDENTS?

Take advantage of the ETSU community. Your professors are so eager to see you succeed. They are your greatest allies and cheerleaders. Take the chances! Make bold decisions and try new things. Fall in love with learning and growing as a professional and person! ■



## TASHA KEYS

*Allied Health, MSAH, 2014*

### WHAT DEGREE DID YOU EARN AT ETSU?

I received a Master of Science in Allied Health (MSAH) Degree from the Department of Allied Health Sciences (College of Clinical and Rehabilitative Health Sciences) in December of 2014.

### WHAT IS YOUR CURRENT POSITION, AND WHAT DOES THE POSITION ENTAIL?

I am currently a member of ALANA Healthcare's Pulmonary Population Health Management (PPHM) team. My position consists of educating patients with chronic respiratory illness, promoting their engagement in disease management, enhancing their quality of life, and minimizing the burdens associated with their chronic illness such as symptoms, hospitalizations, and health care costs.

The most interesting aspect of my position is my ability to positively impact the measurable improvements of patients with chronic respiratory illness by tailoring patient education to meet the needs of the patient and nurturing his or her engagement in health management. This position provides me with a sense of gratification or fulfillment as an educational and health care advocate. It's refreshing to physically see patients benefit from patient education! While health outcomes provide me with a focus, I believe wholeheartedly that educating patients to increase positive outcomes is my purpose and keeps me motivated.

### HOW DID YOUR EDUCATION AT ETSU IMPACT YOUR LIFE AND CURRENT POSITION?

My learning experience at ETSU was remarkable! As graduate students, we expect programs/courses to provide us with the knowledge and skills to advance within our professional careers; however, (from my perspective) it is more profound and rewarding when we can employ that same knowledge and

skills to impact our personal life outcomes! Ironically, the graduate courses influenced my ability to overcome some of the most challenging obstacles in my personal life as well as my professional life. I am confident that ETSU's MSAH program equipped me with the ability to educate my patients, measure outcomes, and make modifications.

### DO YOU HAVE ANY ADVICE FOR CURRENT OR FUTURE GRADUATE STUDENTS?

I would advise current and future students to completely embrace their overall learning experience at ETSU. Stay engaged, focused, and determined! The professors are extremely knowledgeable, compassionate, and dedicated. While they don't serve as a student's only resource for learning, they serve as educational tour guides. As with any tour guide, he or she can only provide information; however, the individual on tour constructs his or her personal learning experience. Graduate school is a similar experience to students. Your educational journey or learning experience is cultivated by your diligent efforts. ■



// FEATURE ARTICLES //



Dr. Doucette, Graduate Studies Librarian (Left), Joanna Anderson, Distance Librarian (Middle) &amp; Rebecca Tolley-Stokes, Marketing and Communications Librarian (Right)



Dr. Doucette

## PLANNING FOR SUCCESS

WRITTEN BY SARA HOWARD - PHOTOS BY BENJAMIN MOTEN

Getting a graduate degree is an arduous journey, which often begins with a chaotic barrage of questions. What databases should I use for my thesis? How do I use a citation manager? How do I write a paper using the correct style? These are just some examples of the thoughts running through the minds of many students as they journey through graduate school. Thankfully, the Sherrod Library has the resources to help.

The Charles C. Sherrod Library is home to one of the most under-utilized resources on campus, the librarians. Dr. Wendy Doucette holds the title of Graduate Studies Librarian. Her primary focus is to provide the services, which can be overlooked in a classroom setting, in a non-judgmental environment. "The library is a friendly group setting to discuss some of the methodology things that graduate students should know," Dr. Doucette explained. Most students are aware of a few services the library has to offer such as the databases, but the Sherrod has much more to offer. Study or research rooms are available to graduate students who are enrolled in thesis or dissertation courses. In addition to the public computers available on the first

three floors, students can even borrow a laptop in four-hour time blocks. Also, the personable library staff is willing to assist students in anyway possible. As a professional researcher, Dr. Doucette is always willing to impart her knowledge to students who are willing to ask.

During the week, the librarians help students with ongoing academic issues. They help students through last minute searches, locating materials, and managing reference software. To increase student knowledge about the mechanics of the academic process, Dr. Doucette is hosting workshops on the frequent problems for graduate students such as scholarly publishing and academic research. The workshops will be on either Tuesdays or Saturdays during October and November. The Tuesday sessions will be held at 7:00 pm in Sherrod room 309. Each Tuesday, a singular topic such as APA writing style will be covered for approximately forty-five minutes. Students can repeat the workshops as frequently as needed.

For the Fall 2016 semester, the Saturday workshops will last from 10:00 am to 4:00 pm. Each Saturday series will be comprised of all six sessions. Topics

***EACH WORKSHOP IS OFFERED THREE TIMES PER SEMESTER, AND THE WORKSHOPS ARE REPEATED EACH SEMESTER***

covered include organization for graduate level-research, writing APA papers, and citation management. Three unique topics for the workshops are academic research, academic searching, and establishing a professional identity. Dr. Doucette describes the academic research sessions as information she wished she had when starting graduate school, particularly in regards to thesis or dissertation work. During these sessions, Dr. Doucette will touch on the basics of scholarly publishing as well. The academic searching session revolves around the library's databases. Students will gain an in-depth knowledge on how to use the databases, and which databases are appropriate for each research subject.

Establishing a professional identity is a vital session for students. Dr. Doucette describes the content of this session as dealing with responsible online use for students. Twitter, LinkedIn, and office email are just a few of the mediums to be covered. All workshops are free to students. However, students must register online for each workshop. To register or to find out more information, please visit <http://www.sherrod.etsu.edu>. Students will find workshop information under the "Information for Graduate Students" tab. Each workshop is offered three times per semester, and the workshops are repeated each semester. Students are welcome to repeat the workshops as frequently as needed.

While the fall workshop schedule is set, Dr. Doucette said that the librarians are always searching for new partnerships for future workshops. Dr. Doucette and the rest of the library staff are currently working on three new workshops for the Spring of 2016. The topics so far include an introduction to medical researching, information on writing literature reviews, and visual literacy for presentations. Student input is vital to the workshop services at the Sherrod Library. Dr. Doucette is willing to create additional workshops on topics students or professors deem important to student success. Dr. Doucette is passionate about student success, and she describes her job as the "most exciting profession imaginable." Her goal is to prepare students to assimilate seamlessly into their chosen graduate program and eventually their careers. ■



Erin Mauck

## OREGON'S RIGHT TO CHOOSE: DECISIONS ABOUT DYING WITH DIGNITY

WRITTEN BY SARA HOWARD - PHOTOS BY BENJAMIN MOTEN

Dying with compassion has fascinated Master's student Erin Mauck since her undergraduate course work at ETSU, where she majored in Sociology. During a social statistics course, Erin completed a research project detailing the impact of religiosity on an individual's opinion of physician-assisted death. Through her efforts, Erin discovered Oregon's Death with Dignity Act, which allows residents of the state who are considered terminally ill to seek assistance in dying from their physicians. Since the enactment of the Death with Dignity Act in 1997, the number of terminally ill individuals who received and used a prescription for life-ending medications has increased from twenty-four in the first year to one hundred and five in 2014. However, this only represents the two-thirds who actually use the prescription. The remaining one-third, for various reasons, do not.

Through her own personal experience and the realization that many individuals will make decisions pertaining to end-of-life care, Erin found the Death with Dignity Act to be an important law. A spark of curiosity from a class project grew into a full flame. She decided to extend her education at ETSU to examine the topic further.

Unlike most graduate students, Erin knew the general topic of her thesis prior to beginning her program. She actually chose to pursue her M. A. in Sociology at ETSU, because the flexibility of the program would allow her to participate in more in-depth research on physician-assisted death. Dr. Martha Copp, her advisor for the project, completely supported her from the beginning. Erin admits nervousness when first approaching Dr. Copp about the project. Physician assisted death is neither a common nor comfortable topic for a student to broach with a professor. However, Dr. Copp proved to be one hundred percent behind her student. Erin describes the relationship between the two as supportive and collegial.

The main objectives of her thesis examined the motivation behind physician-assisted death, the impact of the Death with Dignity Act itself, and the outcome of the terminally ill patient seeking to utilize the law. Her initial step was to make contact with the organizations that have first hand experience with the Death with Dignity Act. These organizations included the Death with Dignity National Center and Compassion and Choices Oregon. Erin scheduled interviews with paid employees at the different agencies in Oregon, as well as volunteers from the organizations.

In July of 2015, Erin traveled to Oregon to collect data from primary sources on the impact of the Death with Dignity Act in the state. A Student Research Grant from the School of Graduate Studies funded her ten-day research trip. She conducted her work primarily in the Portland, Oregon area with the aid of two different organizations, Death with Dignity National Center, and Compassion and Choices Oregon. In addition to her scheduled interviews, Erin also had the opportunity to interview several retired physicians who support the Death with Dignity Act. Her physician interviews included the two medical directors for Compassion and Choices. Through her interviews, Erin gained a greater understanding of the importance of the physician-patient relationship as well as the impact on conversation regarding end-of-life choices. She also conducted interviews with the program directors for both the Death with Dignity National Center and Compassion and Choices Oregon. She was even invited to a Compassion and Choices volunteer meeting in Corvallis. Erin was able to learn about a few of the community outreach programs, including running information booths at local Farmers' Markets and fairs, as well as "death cafés".

Community supporters and organizations in each area host the death cafés. Individuals register for a day to meet at a local coffee shop to discuss their thoughts on death, including their thoughts on the afterlife. Erin found that these programs promote a culture where conversations about death are not as taboo as in other parts of the country.

Preliminary findings of her research reveal that the three most common reasons for a person to choose physician-assisted death are loss of autonomy, loss of quality of life, and loss of self-

reliance. Terminally ill patients who chose physician-assisted death want some control regarding their final moments. The Death with Dignity Act provides the patient with a renewed measure of control. Individuals can choose the time of their death and die at home with loved ones. In fact, statistics show that ninety-five percent of individuals have been able to die at home.

Yet, Erin was struck by the lack of access to utilization of the law, particularly those outside the metropolitan areas. In many situations, religiously affiliated employers do not support the law. Physicians may wish to provide end-of-life options including physician-assisted death to patients who are interested, but hospitals or other employers have set standards in place to prevent the physicians from participating in the Death with Dignity Act. At any employment agency, employers create standards based upon the company's mission statement, which can dictate employee actions. The religious persuasions of an employer can impact the ability of a physician to prescribe physician-assisted death as well as the accessibility for terminally ill patients.

Erin has grand hopes for the outcome of her research. In the short term, she would like to focus on completing the analysis stage of her research and obtain additional secondary data. Erin hopes to deploy surveys across the region or state to facilitate the discussion on physician-assisted death. Erin's long term plans include either working through a university or an organization at either the state or national level where she can facilitate discussions as this important topic arises--as it may for all of us. ■



Dr. Copp (Left) and Erin Mauck (Right)



Kelly Stapleton

## IMPROVING EDUCATION THROUGH RESEARCH

WRITTEN BY SARA HOWARD - PHOTOS BY BENJAMIN MOTEN

Since Kelly Stapleton began her higher education, her passion has been teaching. Actually, her interest in the field dates back to her childhood. When she was a child, Kelly held fast to the notion that teaching would be her career. She began at Northeast State Community College before transferring to ETSU with the Midway Scholarship to achieve her B.S. in Education. For her career goals, Kelly knew graduate school was her next step. She decided to pursue her Master's of Education in Elementary Education to enhance her knowledge of the field and to strengthen her own teaching. Her research project was an outlet that enabled Kelly to strengthen her knowledge, and in turn strengthen her ability in the classroom.

Kelly's research project investigates the attitudes of teachers toward school counselors, which seems to be an understudied topic. Her interest in the combination of school counseling and teaching began as an undergraduate student. Kelly transformed her interest to a research opportunity. Together with her advisor, Dr. Lori Meier, Kelly began to formulate a way to combine an interest in school counseling with her passion for teaching. Kelly sought to find

answers to tough questions that are not always addressed in the field like "Do teachers' expectations of school counselors align with the daily activities of counselors?" Dr. Meier stated, "Kelly is not afraid to ask the hard questions in education." This ability to seek to answer the difficult questions of the field contributed to the quality of Kelly's work.

She admits to feeling overwhelmed at the beginning of the process. However, Dr. Meier guided Kelly to a more confident position by increasing her understanding of the research process. Initially, she did not fully grasp the vital role research plays in the field of education. Kelly stated, "I was really able to understand the process of research, which I would not have gotten without Dr. Meier. She taught me the importance of doing research in the field." With the help of her advisor, she began the research process with selecting her participants. She chose to target graduates of ETSU's M.Ed. program, because she felt that former ETSU students would be more inclined to respond to her survey. Kelly's response rate was small, but the quality was high. Six open-ended surveys were returned for evaluation from teachers who ranged in experience from one year to ten years in the field.



Kelly Stapleton (Left) and Dr. Meier (Right)

Even with the diversity of experience of the respondents, the analysis of the responses produced one primary theme. Based on the findings of the small exploratory study, teachers appear to expect school guidance counselors to function in a more traditional counseling role. Teachers would prefer to see guidance counselors engaged in activities like character building and addressing challenges outside of the classroom. The expectations of the teachers were not met in reality. In many schools, guidance counselors are asked to fill a more administrative role. Their administrative roles include activities such as building students' schedules, administering standardized tests, and monitoring the lunch and bus rooms. The disparities in teachers' expectations and the realities of the job have just intrigued Kelly more. In the future, she would like to expand her research to analyze the effect of the disparities on the students.



Kelly holding the Journal of Undergraduate Research and Scholarly Excellence, where her work is featured.

### **BASED ON THE FINDINGS OF THE SMALL EXPLORATORY STUDY, TEACHERS APPEAR TO EXPECT SCHOOL GUIDANCE COUNSELORS TO FUNCTION IN A MORE TRADITIONAL COUNSELING ROLE**

Kelly has received recognition for her research. She has presented her work on two different occasions. One of her presentations was at the 2014 Boland Undergraduate Research Symposium. She also presented to an education class at ETSU. Recently, she was published in the Journal of Undergraduate Research and Scholarly Excellence.

Kelly is a very driven individual with big dreams for her future. Currently, she is working in her first teaching position as a third grade teacher in Hamblen County. Eventually, she plans to pursue a Ph.D. in education to teach at the university level. However, Kelly is focused on finding her footing in the teaching field. Whether she is teaching children or training future teachers, Kelly plans to continue to take students to what she calls the "light bulb moment" leading students to a greater understanding. ■



Dr. Schoborg, (Left) and Jessica Slade (Right)

## WHEN PATHOGENS DON'T SHARE WELL: EXPLORING HOW CHLAMYDIAL INFECTIONS PREVENT HERPES VIRUS DISEASE

WRITTEN BY SARA HOWARD - PHOTOS BY BENJAMIN MOTEN

Jessica Slade chose to pursue her Ph.D. in Biomedical Sciences at ETSU, because the program affords the opportunity to rotate through research labs with a variety of research areas. She developed an interest in research as a career path after an undergraduate professor at Henderson State University suggested she complete a summer internship in a research facility. Jessica found her niche at ETSU during her third lab rotation. She found herself drawn to Dr. Robert Schoborg's lab. She stated, "Dr. Schoborg took a chance on me.... He gave me a project and let me start learning. I enjoy the confidence he has in me and the responsibility he gave me. He helped build and increase the confidence in my work and myself."

Jessica's research project is the culmination of twelve previous years of research funded by the National Institute of Health. She studies co-infections, which occur when more than one pathogen infects the same host organism during the same timeframe. Three former Ph.D. students in the Schoborg laboratory studied the interactions of co-infections in cell culture model systems. Building on previously established research, Jessica

expanded on past studies of the interactions between *Chlamydia trachomatis* and Herpes Simplex Virus-2 (HSV-2). She is also the first graduate student at ETSU to study the interactions of chlamydia and HSV-2 within an animal host. The progression to an animal model is vital for understanding the potential clinical applications of scientific research, because the complexities of an infectious disease cannot be replicated outside of an animal model system.

Like many other scientists, Jessica chose mice as her experimental animal model. Mice have a long-standing association with scientific research because they are relatively inexpensive to maintain, and they have many genetic and physiologic similarities to humans. In order to study the interactions of Chlamydia and HSV-2 within the co-infected host, the mice must first be hormone-treated to synchronize their menstrual cycles, so the mice will be infected when inoculated with the pathogens. On day zero of the study, Jessica then infected the mice with chlamydia. Three days later she infected the mice with HSV-2. She also had two control groups; one group was infected with chlamydia on day zero, and the other was infected with HSV-2 on day three. The control groups allows for compari-



Jessica Slade performs immunohistochemical staining of mouse genital tract tissue.

son between a single infection and co-infectious models. Jessica obtained swabs every three days through day twenty-one. These swabs allow Jessica to test the levels of chlamydia by performing a chlamydial titer assay. Similarly, she used a plaque assay to analyze the level of the HSV-2 infection. These assays quantified the number of infectious particles for both chlamydia and HSV-2. Jessica also monitored whether or not the mice became ill after they were infected. In her experiments, 100% of mice that receive only chlamydia remain healthy. In contrast, 70% of mice that receive HSV-2 develop serious neurologic disease. When the mice were first infected with chlamydia then with HSV-2, no

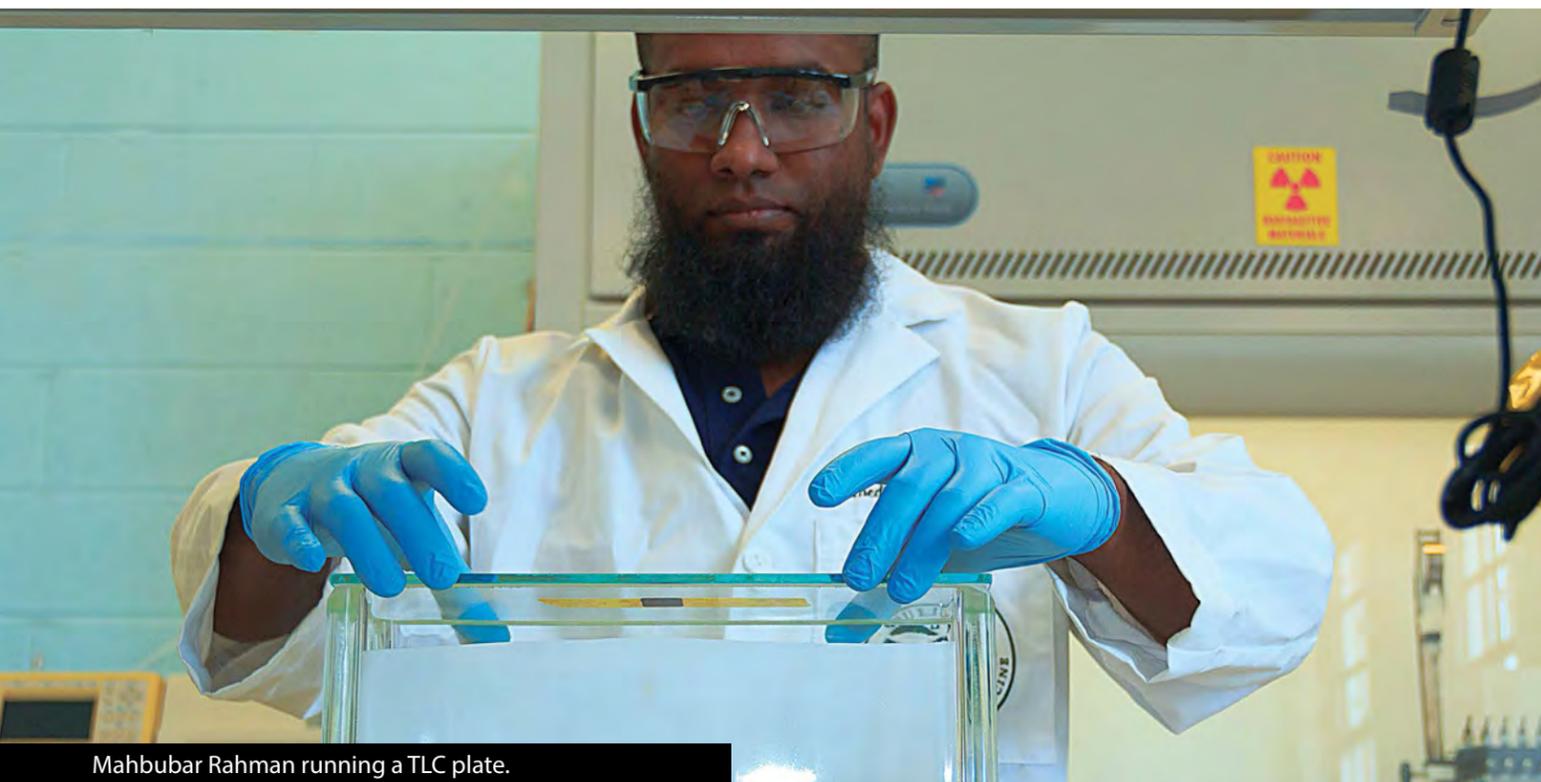
**FOR MOST GRADUATE STUDENTS,  
JUST ONE RESEARCH PROJECT  
CAN PROVE TO BE DIFFICULT TO  
MANAGE. JESSICA, HOWEVER, HAS  
WORKED ON TWO OTHER RESEARCH  
PROJECTS WHILE CONDUCTING THE  
CO-INFECTION STUDY**

signs of disease are observed. All together, the data were surprising since Jessica expected to observe results similar to those seen in the previous lab experiments conducted in cell culture. The cell culture experiments showed that the intensity of the herpes infection increased with

co-infection with chlamydia. However, her experiment in the animal model showed that the herpes infection was actually reduced in mice that were first infected with chlamydia as indicated by both the reduction of HSV-2 recovery from the swabs and by the significant reduction in HSV-2 related disease signs. Jessica concluded that chlamydia essentially primes the immune system against secondary infection with HSV-2. She postulates that a Toll like receptor-2 (TLR-2) within the mouse, which recognizes certain pathogen sequences, responds to chlamydial infection and then initiates a chain of immune responses. These immune responses may be unfavorable to HSV-2 since HSV-2 is known to down regulate TLR-2. Down regulation of a cell receptor means to turn off or prevent the response of a cell receptor. However, the heightened immune response may ultimately prevent HSV-2 from establishing an infection

For most graduate students, just one research project can prove to be difficult to manage. Jessica, however, has worked on two other research projects while conducting the co-infection study. Her second study involves a host cell protein called nectin-1. Working with the Division of Laboratory Animal Research, Jessica breed mice that no longer express the nectin-1 protein. After birth, each pup must be genotyped prior to chlamydial infection. She used a process called genotyping to establish which genetic category to which each mouse belongs. This project was supported in part by a Student Research Grant provided by the School of Graduate Studies, which allowed Jessica to genotype over 1000 mice to date. Compared to mice with two normal copies of nectin-1, nectin-1 knockout mice produce a sub-optimal chlamydial infection. Knockout mice are mice that are missing a specific gene or have the target gene interrupted. These data indicate that nectin-1 is required for normal chlamydial infection. She also participated in a neurobiology study that examined the interactions between chlamydia and the nervous system.

The future holds endless possibilities for Jessica. Her research with Dr. Schoborg has been submitted for publication to Plos One. She has already been published as a third author in Frontiers in Microbiology. In addition, Jessica has presented her findings at the American Society of Microbiology (ASM) General Meeting in Boston, Massachusetts. She also presented at the ASM 1st Conference on Polymicrobial Infections in Washington, D.C., where she received a travel award. Jessica has also attended the Chlamydia Basic Research Society Meetings in San Antonio, Texas, and New Orleans, Louisiana. Jessica's next step is to pursue a postdoctoral position. She would prefer to work on an immunologically based project and possibly continue working on polymicrobial interactions. ■



Mahbubur Rahman running a TLC plate.

# CONTROLLING LIPID SYNTHESIS

WRITTEN BY SARA HOWARD - PHOTOS BY BENJAMIN MOTEN

**M**d Mahbubur Rahman was working in a laboratory for the International Center for Diarrheal Disease Research in his native country of Bangladesh when his supervisor persuaded him to pursue higher education in the United States. With a master's degree in Biochemistry and Molecular Biology, Mahbub longed to further his research abilities. He began searching for an institution where he could be successful. The reputation of the Biomedical Sciences Department at ETSU preceded itself. However, he desired further information before moving to the United States. He contacted Dr. Aruna Kilaru to learn more about the program. She advised him to read some of her research. Mahbub found himself immediately enthralled by her work in plant biology, which is related to agriculture. He stated, "Agriculture is very important in my country of Bangladesh. I decided that if I could work with crops, particularly genetically modified crops, I could help my country."

At ETSU, Mahbub is studying the mechanism of lipid synthesis in plants. Plant lipid is the basis of vegetable oil. Not only is vegetable oil in high demand for its nutritional value to humans, but also

for its use as a biofuel. Mahbub is attempting to understand the regulation of lipid biosynthesis in non-seed tissues of the Avocado, particularly the mesocarp of the fruit. The mesocarp is the fleshy portion of the avocado that is consumed. Much is known about the mechanism for lipid synthesis in the seed tissue of different plants; yet, little is understood of this mechanism in the non-seed tissue. His first step was to isolate and clone genes from the avocado that had the potential to regulate lipid synthesis. The timeframe for this process varies greatly. Dr. Kilaru accurately described the process: "Getting from point A to point B has a lot of detours." For Mahbub, the detours lasted about a year-and-a-half to clone the three genes he isolated. He cloned diacylglycerol acyltransferase (DGAT) 1 and 2 as well as phospholipid diacylglycerol acyltransferase (PDAT). These three genes are believed to act as catalysts for the conversion of diacylglycerol (DAG) to triacylglycerol (TAG), which is the optimal type of storage lipid.

However, not all of Mahbub's cloning skills were learned at ETSU. With the support of Dr. Kilaru, he traveled to New Orleans, Louisiana, to learn about innovative cloning techniques. In New Orleans, he



Mahbubur Rahman (Left) and Dr. Kilaru (Right)



worked with Dr. Jay Shockey, a research geneticist, in an agricultural research facility belonging to the United States Department of Agriculture (USDA). Since the laboratory was neither in an academic nor industrial setting, he gained experience working in a new environment. He also made valuable network contacts for his future. His work in New Orleans also allowed him to present his research to a group of USDA scientists. Mahbub also presented his work at the annual conference for the Phytochemical Society of North America. Dr. Kilaru admits her apprehension at Mahbub presenting before such a distinguished audience so early in the

tography (TLC). He extracts the lipid with a pipet and spots the material onto a thin silica plate or TLC plate. The TLC plate is placed into a container with a mixture of hexane, diethyl ether, and acetic acid. He can then compare the migration patterns of the yeast lipids up the TLC plate to a known standard of TAG. Mahbub concluded that when DGAT 1 is expressed, the yeast becomes capable of synthesizing TAG by utilizing the free fatty acids in the media.

Mahbub envisions the research expanding in the future to include ways to determine the

***AGRICULTURE IS VERY IMPORTANT IN MY COUNTRY OF BANGLADESH. I DECIDED THAT IF I COULD WORK WITH CROPS, PARTICULARLY GENETICALLY MODIFIED CROPS, I COULD HELP MY COUNTRY***

process. However, he exceeded her expectations and did a fantastic job.

After successfully cloning the genes, Mahbub expressed the genes in a separate system. He chose to use yeast as the independent system, because yeasts are cost effective and easily accessed. The strain of yeast he is using cannot synthesize TAG alone. If the genes are successfully cloned into the yeast, the yeast will retain the ability to synthesize TAG. To test the success of the cloning, Mahbub grows the yeast in a medium enriched with free fatty acids. If DGAT 1, DGAT 2, or PDAT are successfully cloned, then the yeast will utilize the free fatty acids in the media to synthesize lipids and multiply. He then tests the amount of lipid produced by the yeast through the process of thin layer chroma-

specificity of the lipids produced. If scientists can control which lipids are produced by genetic engineering, the applications in human nutrition and biofuels are endless. He has received some recognition for his research. Mahbub was a 2014 recipient of the Graduate Studies Research Grant as well as the recipient of the Travel Award from the American Society of Plant Biologists and Phytochemical Society of North America in 2015. Mahbub would like to continue his research on developing genetically modified crops. He has an interest in plant signaling as well. Ideally, he would like to find a position in academia after completing a postdoctoral fellowship. While at ETSU, he had the opportunity to teach some classes, which he greatly enjoyed. He would like to work in a setting that would allow him to teach and continue his plant biology research. ■

Inga Sarkodie

## ENGLISH, АНГЛИЙСКИЙ, 英語

WRITTEN BY SARA HOWARD - PHOTOS BY BENJAMIN MOTEN

Inga Sarkodie is currently finishing her M.A. degree in English with a Teaching English to Speakers of Other Languages (TESOL) certificate at ETSU. Her association with the university and her major begins much earlier. Originally from Belarus, Inga came to the United States in 2000 and moved to Tennessee in 2004. While attending Science Hill High School, she took dual enrollment courses at ETSU and later received Bachelors' Degrees in English and Digital Media. When the time came to choose a graduate institution, ETSU was an obvious choice. She chose to pursue a Master's degree in English, because of her experience learning English as a second language after moving to the United States. To improve her language skills, she spent much of her time reading books. Those books not only improved Inga's mastery of the English language, but also engrained a love of literature and writing in her. She explained, "No one truly understood my English, so I spent most of my time reading books and writing." At the age of fourteen, she wrote her first article for a magazine in Wisconsin. Once she realized that English was not only a talent, but also a passion, she decided to add the TESOL certificate to help others learn the language she had learned to enjoy.

ing in English as a second language in the United States or abroad, in settings such as community, college, and private institute classes. A vital com-

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### *NO ONE TRULY UNDERSTOOD MY ENGLISH, SO I SPENT MOST OF MY TIME READING BOOKS AND WRITING*

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ponent of the program is the internship, in which teachers-in-training get guided practice teaching.

The TESOL Certificate Program provides train-

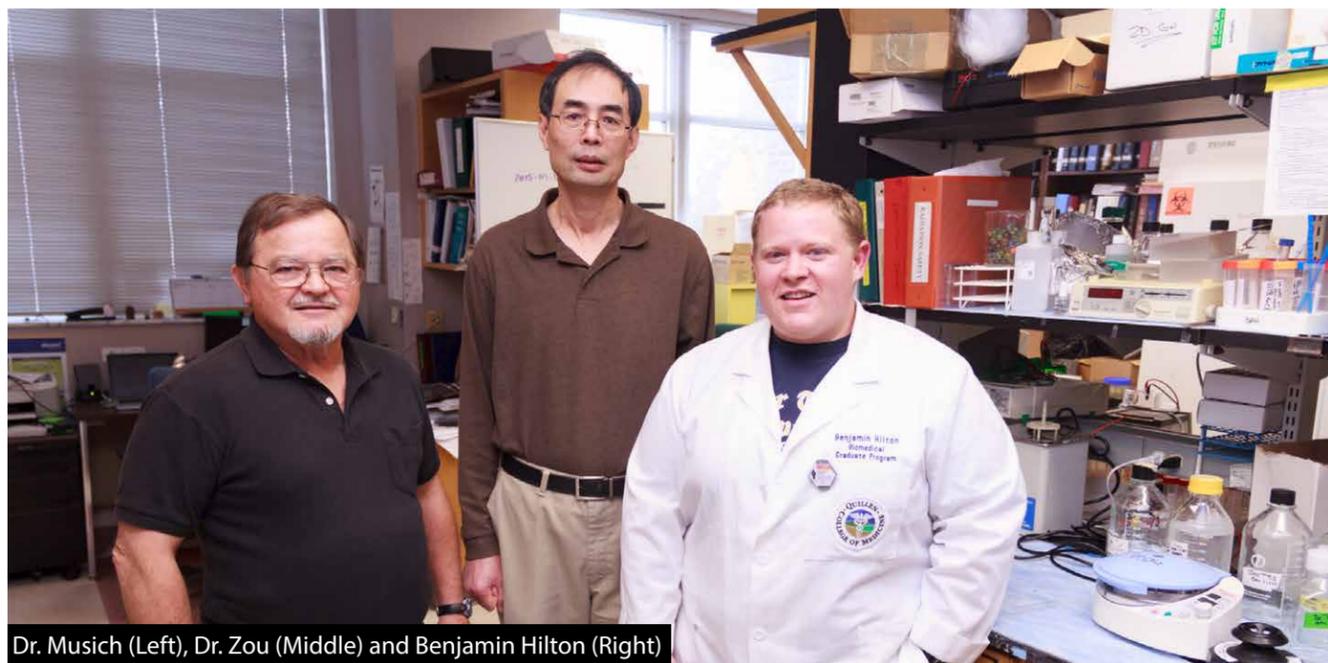


John Mooneyham (Left), Inga Sarkodie (Middle) and Dr. McGarry (Right)

During the spring semester of 2015, Inga interned with a local program dedicated to helping non-native English speakers improve their language skills. Dr. Rosalind Gann, now an emeritus professor, initiated the program in collaboration with a local church. After Dr. Gann's retirement, the program moved to a different location under the leadership of Mr. John Mooneyham. Mr. Mooneyham is an instructor in the department of Curriculum and Instruction in the English as a Second Language program in the College of Education. Together with Dr. Theresa McGarry, her faculty advisor, Inga selected this internship to test out her newly acquired skills. Dr. Micah Corum from the department of Literature and Language served as Inga's internship supervisor. The community program in which Inga taught meets every Tuesday night. Non-native English speaking participants who live around the area gather at the church to work on their English skills. Inga was unsure of what to expect from the program at the start; however, she assimilated quickly to the sessions. The structure of the weekly sessions varied greatly based upon the group needs. Some weeks, structured lessons on grammar or pronunciation were offered. Other weeks, the small groups conversed on any topic. A common problem for many of the participants is the use of American idioms, particularly the idioms native to Appalachia. American customs are also a topic frequently covered in the meetings, since participants come from diverse cultural backgrounds such as South Korea, China, Japan, Brazil, Ukraine, Belarus, Mexico, Peru, Honduras, Taiwan, and Saudi Arabia. In addition, the program provides assistance with job resumes, interviews, and presentations skills.

Inga found that she can empathize with the difficulties of many of participants. Since her native language of Russian is quite different from English, she understands some of the challenges facing those in the program. She states that the program also taught her to be flexible. Each week, she was ready to teach a formal lesson. However, she could transition her plans based on the needs of the group. Inga was most impressed by the environment of the program. She explained, "The program was extremely laid back. I liked that I could bring some of my activities and run my own class." Her confidence in a classroom setting has increased since working with the programs. Throughout her time with the program, Inga was observed three times by Dr. Corum. The feedback she received helped to improve her skills. Going forward, she hopes to see the program expand its reach. Ideally, the program directors would like to use technology to video-conference with participants worldwide. More immediately, Mr. Mooneyham would like to expand the program to serve more individuals in the areas surrounding Johnson City.

Inga's future goals are wide open for now. She considers applying to a Ph.D. program in English or teaching English in Japan through the Japanese Exchange and Teaching Program (JET). Asia is one of the few continents that she has not visited, and she finds Japan's rich culture to be fascinating. Nevertheless, Japan is one of the most difficult Asian countries for English teachers to find a position. The JET program itself is hyper-competitive, but Inga believes her experience gained through ETSU has made her a viable candidate. ■



Dr. Musich (Left), Dr. Zou (Middle) and Benjamin Hilton (Right)

## THE MECHANISM OF ATR AND CANCER RESEARCH

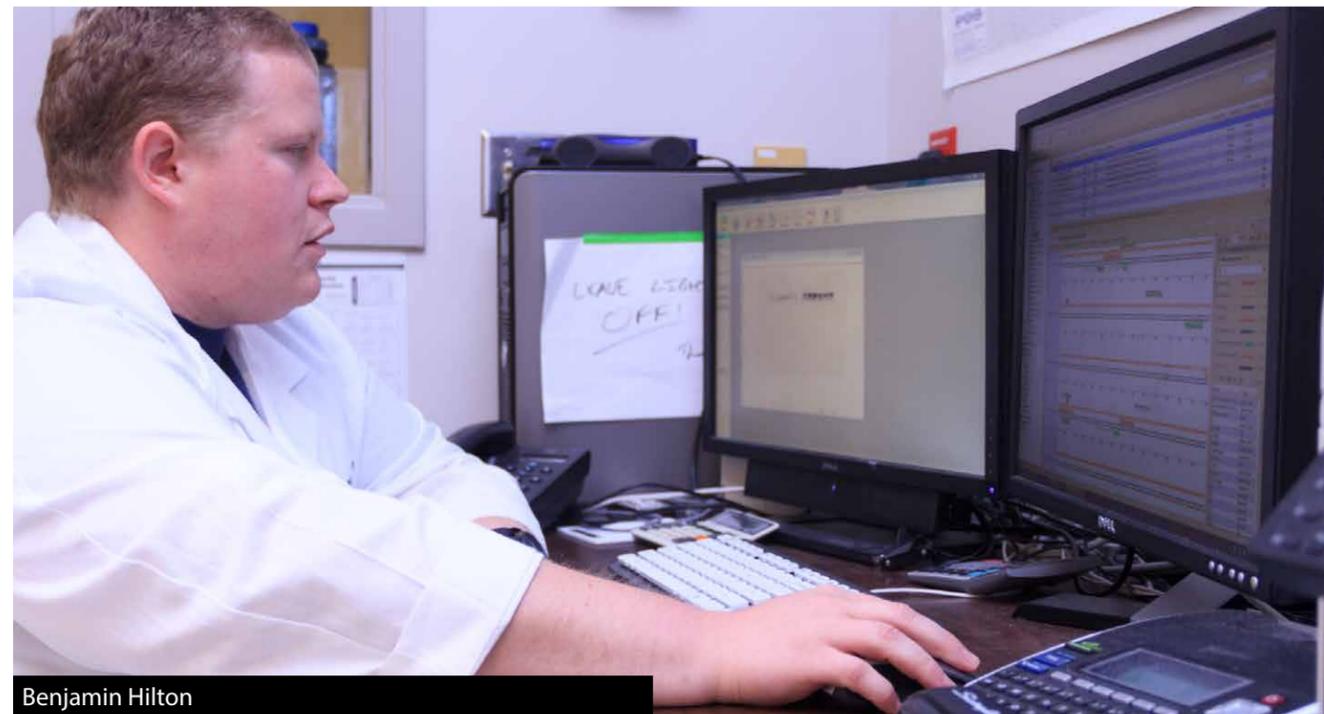
WRITTEN BY SARA HOWARD - PHOTOS BY BENJAMIN MOTEN

**B**enjamin Hilton's interest in ETSU began with a newspaper article. After completing his B.A. in Biomedical Sciences at Clemson University, he stumbled upon an article in the Johnson City Press highlighting the work of Dr. Yue Zou for which he received a RO1 grant from the National Institute of Health. Benjamin, then, spent two years as a lab associate in the labs of Dr. Yue Zou and Dr. Philip Musich. Most of his time was spent on working in Dr. Musich's lab on a premature aging disorder. During his period as a lab associate, he enjoyed the culture of the lab. Dr. Zou and Dr. Musich promote student independence and independent thought while cultivating relationships with students that foster in-depth scientific discussions. Dr. Musich stated, "Picking out an idea and carrying it through is much harder than coming up with a bunch of ideas." Dr. Musich and Dr. Zou also promote an environment where students can learn how to effectively maneuver the process of following an idea to completion. This environment helped Benjamin decide to pursue his Ph.D. in Biomedical Sciences with a concentration in Biochemistry.

Currently, his work has centered on the protein ataxia telangiectasia and Rad3-related (ATR), which is a continuation of eight years of research in Dr.

Zou's lab. ATR is a protein that is involved in the damage control of DNA within a cell. When DNA is damaged, the cell is preprogrammed to respond to the damage in one of three ways. The cell's responses are to repair the DNA damage, enter a resting state to allow the repair to finish, or initiate apoptosis. Apoptosis is the term used for programmed cell death. ATR controls which process is initiated. ATR actually stops the cell cycle to make repairs while preventing apoptosis. When the damage is too severe, apoptosis is initiated to selectively remove damaged cells that cannot be repaired and to protect the entire organism. In healthy cells, this process is normal. However, the pro-survival activity of ATR suppresses apoptosis for killing damaged cells that may undergo tumorigenesis. Tumorigenesis is the transformation of healthy cells into cancer cells. Thus, the cancer cells start to form and grow aggressively.

In his work with ATR, Benjamin focused on understanding the mechanism. Through his studies, Benjamin determined that ATR works through the mitochondria in the cell. This finding is quite remarkable since all previous research focused on ATR in the nucleus of the cell. He monitored levels of cytochrome c within the mitochondria. Cytochrome c is a component of mitochondria that is



Benjamin Hilton

involved in initiating apoptosis. Benjamin was able to mutate different sites in ATR to identify domains that interact to prevent cell death.

These findings could potentially have implications for cancer treatment. Current cancer treatments bombard cells with drugs or x-rays in hopes of damaging carcinogenic cells past the point of repair. Thus, the treatment stimulates apoptosis. In some cases, cancer cells turn on ATR. Once ATR is activated in the mutated cells, ATR stops the cell cycle to allow DNA repair in the nucleus while preventing apoptosis at mitochondria. If scientists can identify a way to selectively inhibit ATR's protective function at the mitochondria, the toxicity of the anticancer drugs can be enhanced. This leads to more effective killing of cancer cells.

In his research, Benjamin utilized a variety of different methods in uncovering ATR's mechanism. However, his primary method was a technique known as the Western blot. Western blot analysis uses antibodies to identify proteins. He lysed the treated

cells to disrupt the cellular member to release the proteins. Benjamin then denatured the proteins with chemicals, which changes the structural configuration of proteins. He then ran polyacrylamide gel electrophoresis, which separates the proteins by size and blotted the proteins to a membrane. Antibodies then were attached to the proteins, which helps to identify each specific protein.

Benjamin's research has gained recognition while at ETSU. He has published a total of eight manuscripts. A few of his publications were published in *Biosciences Report*, *Chemical Research and Toxicology*, and *Nucleic Acid Research*. His latest publication is in *Molecular Cell*, and the work was highlighted in the October 2015 issue of *Nature Reviews Molecular Cell Biology*. Benjamin also has presented his research in multiple poster presentations at the Midwest DNA Repair Symposia, Progeria Research Conference and Cell Symposia on the Multifaceted Mitochondria Symposium sponsored by the journal *Cell*. He also presented two platform presentations at the Midwest DNA Repair Symposium in 2013 and 2015. Each of his platform presentations was awarded the first-place prize. As for the future, Benjamin is interested in completing a post-doctoral fellowship. Ideally, he would like to stay in the academic setting. Through his experience, he has enjoyed the culture of research in an academic setting. Benjamin stated, "I enjoyed being able to discuss and figure out the direction of the project, and figuring out the best scientific approach to the project with Dr. Zou and Dr. Musich." Benjamin considers working in a similar setting in the future. ■

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***BENJAMIN'S RESEARCH HAS GAINED RECOGNITION WHILE AT ETSU. HE HAS PUBLISHED A TOTAL OF EIGHT MANUSCRIPTS***

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Dusty Brice

## MONSTROUS-FEMININITY

### REEVALUATING THE LAWRENTIAN WOMAN

WRITTEN BY SARA HOWARD - PHOTOS BY BENJAMIN MOTEN

Dusty Brice began his career at ETSU as an undergraduate student pursuing his B.A. in English with a minor in Secondary Education to fulfill his lifelong goal of teaching. "As a kid, I wanted to be a professional wrestler, a giant squid, or an English teacher, so I took the road less traveled," he quipped. His next step on that road was to pursue his English M.A. as a means of challenging himself and broadening his career options. Dusty was drawn to the program at ETSU because he knew from experience that the professors were dedicated to student success. Students in the M.A. program are routinely writing theses that are sixty to seventy pages in length, and Dusty knew that this would not be possible without the committed support from professors. For Dusty, Dr. Daniel Westover proved to be the perfect confidant and advisor to flesh out his new take on a classic author. "I could see early on that Dusty was doing really interesting things with feminist theory," Dr. Westover remarked. "He was seeking out and integrating what others had written about British fiction, but he had his own ideas too, exciting ideas." Dr. Westover's support enabled Dusty to pursue his unorthodox theory on D.H. Lawrence, a canonical British novelist whose treatment of women, according to Brice, is often misrepresented.

Dusty's thesis focuses on elements of horror in contemporary British fiction, and he traces these elements back to their origin in Lawrence's work. While the average person might equate horror with films or video games depicting zombies and serial killers, Dusty locates horror in places that are not typically discussed as horrific. More specifically, he focuses on the female body as a source of horror, adapting Barbara Creed's concept of "monstrous-femininity." Dusty explains that in patriarchal society women are often viewed as monstrous because of their gender, biology, or sexuality, which is frightening to men. Moreover, in Western literature, female characters are often cast as "other" or "abject" when they do not conform to the expectations of social norms. However, Dusty argues that a novelist's depiction of the treatment of women is not necessarily representative of the novelist's personal views. Dusty reasons that D.H. Lawrence's early female characters, particularly those in *The Rainbow*, fall into this category.

Lawrence is a well-known twentieth-century British author, whose work was banned during his lifetime because of its open treatment of sexuality. In fact, thousands of copies of *The Rainbow* were seized and burned in 1915 as the result of a court order. This altered Lawrence's writing and his



Dr. Westover (Left) and Dusty Brice (Right)

worldview. Dusty concedes that during this time, Lawrence's personal views on women can be labeled misogynistic. However, Dusty is quick to add that an author's personal views and biography are not necessarily the best guides to interpreting literature, and he argues Lawrence's early work, in particular *The Rainbow*, actually displays an empowering view of women. More specifically, these women are associated with the natural world and embrace the very attributes that others label as monstrous. Dusty argues that these female characters are archetypes for what he calls the "Lawrentian Woman." Although not commonly seen among Lawrence's contemporaries, the Lawrentian Woman is found in the works by writers of the later twentieth and twenty-first centuries, including Graham Swift, An-

gela Carter, and Sebastian Faulks. In their works, as in Lawrence's, female characters are more likely to be empowered by their differences than disenfranchised. prompted Dusty to reevaluate many of his beloved horror films. Also, Dusty developed an interest in the topic of monstrous-femininity through his seven nieces — not, he is quick to add, because they are themselves monstrous, but because he never wants them to be defined by their gender. Dusty's hope for this work, beyond a reevaluation of Lawrence's early work, is to promote a literary culture where gender is not the defining attribute of literary characters and where assumptions about stories, poems, and novels are not made solely on the basis of an author's biography.

Dusty's work is already gaining recognition. A chapter of his thesis will be published in the forthcoming *Tennessee Philosophical Bulletin*. Also, he presented

## IN WESTERN LITERATURE, FEMALE CHARACTERS ARE OFTEN CAST AS "OTHER" OR "ABSTRACT" WHEN THEY DO NOT CONFORM TO THE EXPECTATIONS OF SOCIAL NORMS

gela Carter, and Sebastian Faulks. In their works, as in Lawrence's, female characters are more likely to be empowered by their differences than disenfranchised.

Dusty's inspiration for this topic is twofold. Before he began his thesis project, he read *The Monstrous-Feminine* by Barbara Creed. The book is an analysis of the female monsters in horror films such as *Psycho* and *Carrie*. Creed asserts that monsters in many of these works are terrifying, not only because of their actions, but also because others defined their gender as monsters. Creed's analysis

a chapter of his thesis at the South Atlantic Modern Language Association conference last year, presenting his work alongside well-known and highly regarded Lawrence scholars. While admittedly nervous, Dusty was accepted as a colleague and enjoyed participating in the lively discussions and varying opinions on Lawrence's work. In the future, he would like to extend his sixty five-page thesis into a book on the Lawrentian Woman. Dusty also intends to pursue his Ph.D. after graduation in December. His overall goal for the future is to become a college professor who helps writers find their voices like his professors have done for him. ■

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2015-2016



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M.S. Chemistry  
Title: Supercritical Mesoporous Adsorbents for Heavy Metal

Dr. Aleskey Vasiliev,  
Committee Chair

## JOEL KWAME ANNOR-GYAMFI

M.S. Chemistry  
Title: Synthesis of Pyrrolo [2,1-C] [1,4] Benzodiazepines Derivatives as a New Class of Non  $\beta$ -Lactum  $\beta$ -Lactamase Inhibitors

Dr. Abbar G. Shilabin,  
Committee Chair

## EYRAM A. ASEMPA

M.S. Chemistry  
Title: Computational Studies of Spin Trapping of Biological Relevant Radicals by New Heteroaryl; Nitron

Dr. Scott Kirkby,  
Committee Chair

## ERIN E. MAUCK

M.A. Sociology  
Title: Death With Dignity: The Importance of Autonomy for a Terminally Ill Person who Requests Physician Assisted Death

Dr. Martha Copp,  
Committee Chair

## MELISSA H. NIPPER

M.A. Professional Communication  
Title: The Power and Gravity of the Discourse of Campus Sexual Assault: A Case Study in South Central Appalachia

Dr. Amber Kinser,  
Committee Chair

## KATELYN OSBOURNE

M.F.A. Studio Art  
Title: Becoming Animal

Dr. Ralph Slatton,  
Committee Chair

## JESSICA SLADE

Ph.D. Biomedical Sciences  
Title: Characterization of Chlamydial Development in Nectin-1 Knockout Mice

Dr. Robert Schoborg,  
Committee Chair

## VIJAY TIWARI

M.S. Biology  
Title: Identification and Characterization of Fatty Acid Amide Hydrolases in Tomato

Dr. Aruna Kilaru,  
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