

ETSU SCHOOL OF GRADUATE STUDIES

Illuminated Magazine

GRADUATE STUDENT RESEARCH MAGAZINE

EAST TENNESSEE STATE UNIVERSITY

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EAST TENNESSEE STATE UNIVERSITY

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 graduate 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 ongoing on campus and provides updates on former ETSU graduate students who have graduated from ETSU.

Enjoy!

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SCULPTING

WITH CONVERSATION

MELISA CADELL

Melisa Cadell, Graduate Student
Catherine Murray, Faculty Advisor

By Mariam Ayad
Designed by Sara de Miguel

The flames flickered and swayed as nine-inch-tall, upside-down wax figures slowly melted, creating what looked like frozen waterfalls. In another section of the room, ice sculptures covered in sand dripped and puddled as the evening went on.

These morphing pieces of artwork were part of Melisa Cadell's exhibition, *Contextual*, which was held at the Tipton Gallery in downtown Johnson City last summer.

"In a way, it's kind of like creating visual poetry, I think," Melisa, a student in the Master's of Fine Arts program, said. "I'm more interested at this point not so much in a final object as I am with the ideas and the layers that produce those objects."

Melisa hopes her work stimulates conversations among gallery visitors about a variety of issues, from personal to political.

"What I've always enjoyed about my work that has these layers is that people can see two very different things depending on their experiences," Melisa said. "Then



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→ GRADUATE STUDENT_MELISA CADELL

04 Art, M.F.A. (Studio Art Concentration)
Sculpting Conversation with Melisa Cadell
Graduate Student: Melisa Cadell

07 History, M.A.
Charting European Nationalism
Graduate Student: John Wyatt Greenlee

08 Where are they now?
Computer and Information Sciences, M.S.
(Information Technology Concentration)
Megan Bradley

09 Psychology, Experimental Psychology
Concentration, Ph.D.
The Effect of Self-compassion and
Mindfulness on Depression
Graduate Student: Jessica Williamson

11 Where are they now?
English, M.A.
Sean Levenson

11 Biomedical Sciences, Ph.D.
Searching for the Off Switch in Cancer Cell Replication
Graduate Student: Moises Serrano

14 Clinical Nutrition, M.S.
Nutrition on the .NET
Graduate Student: Courtney McKinney

16 Where are they now?
Kinesiology and Sport Studies, M.A. (Exercise
Physiology and Performance Concentration)
George Beckham

17 Professional Communication, M.A.
Costume Design in the Digital Era
Graduate Student: Christine Waxstein

when I have people in a room that are seeing different things at the same time, sometimes those conversations evolve.”

Many of her pieces involve feminine issues, and this thread binds together much of Melisa’s work.

“In a way, it’s kind of like creating visual poetry. I’m more interested at this point not so much in a final object as I am with the ideas and the layers that produce those objects.”

“The underlying concepts in her work are her experiences as a woman and her empathy for women,” Catherine Murray, professor and chair of the Department of Art and Design, said. “That really comes through as you view her studio.”

In her final year of the three-year program, Melisa will present an exhibition at the end of the spring semester. Although it’s still early for her to finalize what she’ll present for the project, Melisa knows she wants to continue playing with the element of time in her artwork, forming her pieces so they are visually altered throughout the day.

“The work that she’s been moving toward doing for the last year or so involves the ephemeral,” Murray said. “She’s working with time in a way that her old work didn’t address. The viewer becomes

more important in the process because [the work] won’t be there tomorrow.”

She also wants to include video in her final project because of the impact and change that new technology has brought

into society, and how people document the world around them.

“I think to not use that medium would be a dismissal of a powerful tool. It’s too tied to what’s actually happening in our society,” Melisa said.

Melisa is currently working on creating a mold of a female figure using styrofoam. She will use the mold to create paper figures that she plans on placing in water or burning for an upcoming project.

However, Melisa didn’t come into the program with these types of pieces in mind. Sculpting with clay for the last 15 years, she didn’t know exactly how her artwork would change throughout the program, but her willingness to explore new mediums and methods led her to grow as an artist.

“In the arts, it seems that the directions you come in with often either change profoundly or they morph as you do research,” she said.



→ WHAT IF SHE LET GO?



→ “CONTEXTUAL” TIPTON GALLERY STREET

M

elisa has worked as a full-time studio artist for 12 years, primarily with pottery and sculpture. She currently owns Cadell Studios, which operates out of Bakersville, N.C. Her work is well known throughout the Appalachian region, and she also teaches workshops at area art schools. Melisa began the MFA to take her artwork and business to a new level.

“For me, I had to completely shut off that production part of my business to figure out what it was that I really wanted to do because in a Master’s program, you have the opportunity to play,” she said.

Melisa’s experience as a studio artist has also helped her to glide forward in the program faster.

“Graduate school is very self-directed. You have to be self-motivated, and you have to have ideas of your own that you’re willing to pursue, and Melisa had all of that already because she had been working in her own studio, and she has a very highly respected body of work,” Murray said.

After completing her MFA, Melisa hopes to continue working as a full-time studio artist, but with her sights set on museum shows rather than galleries and retail artwork. She also hopes to teach as an adjunct professor. ●



→ CATHERINE MURRAY (LEFT) AND MELISA CADELL (RIGHT)

John Wyatt Greenlee Graduate Student
 Brian Maxson, Ph.D. Faculty Advisor

CHARTING EUROPEAN NATIONALISM

By Mariam Ayad
 Designed by Sara de Miguel

Carefully detailing roads, landmarks and land borders are the goals of modern cartographers. But that hasn't always been the case. Cartographers used to design maps with little regard for geographic accuracy, and John Wyatt Greenlee is conducting research to further illuminate the reasons for a particular 13th century cartographer's work.

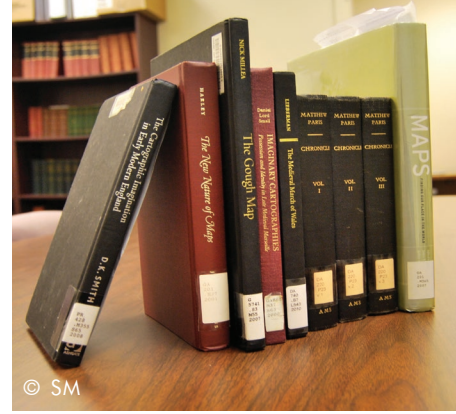
Matthew Paris was a monk, historian and artist, and has been credited with drawing the first maps of England. Most historians have looked at the

maps as making a break from traditional cartographic styles of the era, but not much more. John, a Master's student in history, wants to challenge this historiography by suggesting that Paris' maps might be seen as demonstrating signs of nascent English national identity, and articulating an early imperial agenda through their depictions of the island of England.

"During this time period and even after, you draw a map, you put Jerusalem in the center of the map, and you draw just a circle around it. There is little conception



→ JOHN WYATT GREENLEE (LEFT) AND DR. BRIAN MAXSON (RIGHT)



of geography and no conception of realistic geographic representations. That's not a priority," Dr. Brian Maxson, assistant professor in the Department of History, said. "The priority is to show the centrality of Christendom."

But Paris' maps were different. Paris made the dramatic departure from traditional cartography by featuring England as the primary focus of his maps. The monk also oriented his maps with North at the top of the page. Though a familiar concept in modern cartography, this North-South orientation broke from the older cartographic styles which placed East at the top of the page so that the reader faced towards Jerusalem.

"I think you can look at the maps to find some early signs of forming an English identity."

Paris did not break wholly with the older styles, however. His maps seem to place only a minimal priority on geographic accuracy. The island of England is much thinner than it ought to be, with London situated almost on the southern coast. Scotland takes an unrealistic turn to the east, and in one map is shown as a separate island connected to England only by a bridge. Greenlee believes that this lack of geographic precision has led most scholars to give Paris' maps only a cursory examination.

"Most historians say the map is innovative, but that he doesn't quite get it right, and so they move on to maps that they think get it right and are similar to maps of today," John explained. "I think they're missing a lot of what he was trying to do with the maps."

Scholars have traditionally taken the maps as a failed attempt to move toward accurate cartography, but John

believes this understanding overlooks the role maps can play in establishing claims to power and legitimacy. He thinks Paris' maps should be understood as cultural weapons of a medieval imperial process and signs of national identity.

"I think you can look at the maps to find some early signs of forming an English identity, as opposed to being a member of Christendom or being a member of a more individualized clan or a smaller group," John said.

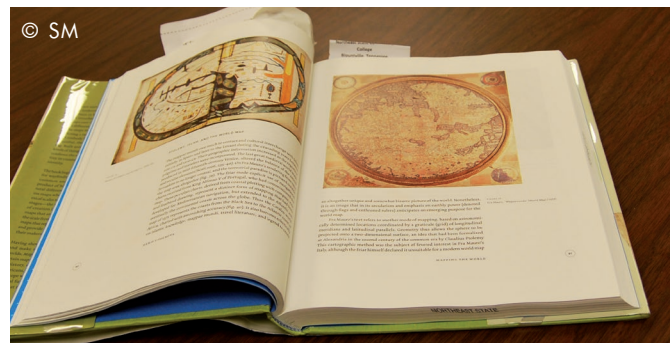
To conduct research for his project, John went to London last summer to see some of Paris' 700-year-old maps firsthand. "Just having the opportunity to go and look at books that are from the 1300s and 1400s, that was really something," John said. "It's humbling to be looking at a book that's 700 years old."

John presented a paper on medieval pilgrimages at the Mid-America Medieval Association conference in February of last year. He also presented at the University of Virginia - Wise Renaissance Conference as well as at the annual graduate student research conference hosted by ETSU's history department. John presented parts of his research on Paris' maps at the Ohio Valley Conference in October.

John hopes to continue his academic career by pursuing a PhD in the future and eventually landing a teaching position at a university. ●

If interested, you can check out Matthew Paris' maps online:

- <http://www.bl.uk>
- <http://www.aip.org>
- <http://www.bodle.ox.ac.uk>



WHERE ARE THEY NOW?



MEGAN BRADLEY

Degree: Computer and Information Sciences, M.S. (Information Technology Concentration)
Year of graduation: 2011
Department: Department of Computer and Information Sciences.

Current Job: Application Programmer
Company: Oak Ridge National Lab, Information Technology Services.
Location: Oak Ridge, TN

What are your work responsibilities?

I work with SAP to create and modify solutions to improve the business services used by researchers and employees throughout the lab. I have done everything from writing the code for a new part of an application to writing test specifications for documentation. Sometimes an error comes up that prevents users from completing a task that they used to be able to do. My job is to read the current code, find the issue, and write the code to fix it.

What do you like about your job?

Getting to create a new program is one of the aspects of my job that I enjoy. I get to think about how to design the program that a person can utilize in their everyday work. Another aspect I like about my job is identifying and fixing problems in currently implemented applications.

How has your Master's degree helped you?

ETSU offers a great, unique computer science program. It is one of the few programs in the southeast and the only one in Tennessee that offers courses related to designing and developing within Enterprise Resource Planning systems. The professors and class experiences at ETSU provided me the knowledge in developing a skillset that made me a very marketable hire in a competitive workforce.

What advice would you give to current graduate students?

My advice would be to start looking at the different job opportunities that are available in an area you would be interested in. See if there are any skills the job might require that you need to brush up on in class. Be confident in the skills you have acquired from your program at ETSU. The projects and coursework in the CSCI program give you an idea of what it will be like in the "real world". Reference these projects and the specific part you played for the design, development, and implementation during an interview. This will get you ahead of your competition. ●

Graduate Student, Jessica Williamson
 Faculty Advisor, Ginnette C. Blackhart, Ph.D.

THE EFFECT OF SELF- COMPASSION AND MINDFULNESS ON DEPRESSION

By Mariam Ayad
 Designed by Sara de Miguel

It can take psychologists eight to 16 weeks to treat a depressed patient using mindfulness, a technique that's been studied since the 1970s. Mindfulness inductions are training sessions that help people to objectively evaluate their world and their interactions with others. However, Jessica Williamson thinks that a related

construct, called self-compassion, could help treat depression faster with the same results. The study of self-compassion to treat depression is relatively new in the field.

"Self-compassion has a component of mindfulness, so there is that objectivity there, but it also has components of common humanity and self-kindness," Jessica, a doctoral student in the Department of Psychology, explained. "With common humanity, you're looking at other people as well, and you're saying that your experience isn't unique ... and you're not alone. That connection with your fellow humans makes you feel a little bit better about what you're going through."

"Self-compassion could help treat depression faster with the same results."

Self-compassion inductions can involve tasks like writing a letter of kindness to oneself about a guilty feeling as though the letter is for a friend.

"It's easier to write it to a friend. You already know how to be compassionate, it's just directing it to yourself," Jessica said. The more recent research on self-compassion has prompted debate in social psychology. Some researchers argue that mindfulness and self-compassion are different and can have different effects on treatment. Other researchers believe the two constructs are essentially the same.

"So there's a bit of debate in the field, and this is what really propelled Jessica to look at this further," Dr. Ginni Blackhart, associate professor in the Department of Psychology, said.



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→ JESSICA WILLIAMSON (LEFT) AND DR. GINNI BLACKHART (RIGHT)

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Jessica conducted two meta-analyses, one on the effect of mindfulness on depression and the other on the effect of self-compassion on depression. Using the means, standard deviations and sample sizes from the original studies, Jessica calculated one effect size for each study so she could compare them to one another.

She wanted to test two hypotheses. First, Jessica hypothesized that the meta-analyses would show mindfulness and self-compassion as both significantly and negatively correlated with depression. Second, she hypothesized that self-compassion would

have a greater effect on depression than mindfulness.

"I just wanted to see how self-compassion fared relative to mindfulness because mindfulness is a sub-component of it," Jessica said. "I wanted to know if it

was just another type of mindfulness induction or if it was actually better than just a mindfulness induction."

Jessica found strong support for the first hypothesis, but not the second. The meta-analyses showed that mindfulness and self-compassion, whether the constructs were taught or were already traits of surveyed participants, had a significant impact on combatting depression. Although Jessica's results did not show strong support for her prediction that self-compassion would be more effective than mindfulness, she thinks she knows why.

When Jessica split the meta-analyses into correlational studies and inductions, she found that correlational self-compassion studies had a larger effect size than mindfulness inductions. But in comparing only the correlational studies, in which researchers mostly used self-report measures to determine trait mindfulness and trait self-compassion, the effect of mindfulness and self-compassion on depression was similar. Jessica thinks

this has to do with the limitations of self-report measures.

"With correlational studies, it's easy for people to say that they're very self-

"Self-compassion has a component of mindfulness, so there is that objectivity there, but it also has components of common humanity and self-kindness."

compassionate, but when they are actually told to be self-compassionate, it might look a little different. It might have a different effect on depression," she said. "So, we'd really have to have more self-compassion inductions and research on their effects on depression to say it is more effective than mindfulness. Hopefully, this will prompt more research in that area."

Jessica conducted this study for her preliminary project in the Department of Psychology's doctoral program. The preliminary project must be completed within 90 days of the formal proposal. She presented her findings from another research project involving self-compassion at the Society of Southeastern Social Psychologists conference in October. ●



→ SELF-COMPASSION IN DEPRESSION.

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WHERE
ARE THEY
NOW?

Degree: English, M.A.
Year of graduation: 2012
Program/Department:
Department of Language
and Literature

SEAN LEVENSON

What are you doing right now?

PhD in English, concentration in Literary and Cultural Studies

Location: Wayne State University, Detroit, MI

How has your Master's degree helped you?

I wanted to study literature and language as a career, so the Master's degree was an integral part of my career. Coursework, research, and other academic activities weren't just school. They were also my job. In context of my work now, my MA degree from ETSU provided the academic background and professionalization necessary to go on to the next part of my career, the PhD in English.

What advice would you give to current graduate students?

If possible, give yourself a day or a half-day to relax and do what you want to do every week. It won't always be possible, and that's why it's important to get some rest when you can. You do better work when you aren't overexerting yourself.

Where do you hope to go after this?

A tenure-track faculty position teaching English somewhere would be great. However, I'm not really thinking too much about the "after this" part right now. What I'm doing right now is keeping me busy enough.

Anything else you'd like to share?

I have a further piece of advice: Go to a conference or two. Some of my professors encouraged me to go to conferences, so I did. I found it to be a rewarding experience. Conferences are great for both attendees and presenters. You can share your best seminar papers and get some interesting feedback. You can also do a little networking and see in person some celebrities in your field.

SEARCHING for the off switch in cancer cell replication

By Mariam Ayad
Designed by Sara de Miguel

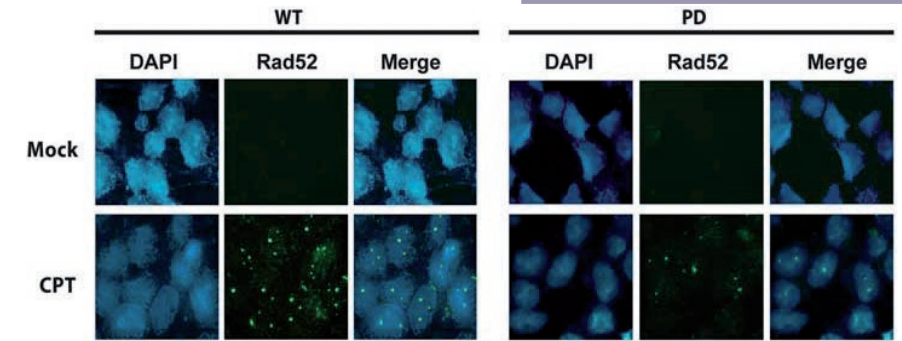
Moises Serrano, a doctoral student in the Department of Biomedical Sciences, is working on research that he hopes will be a step toward finding a more effective strategy for treating cancer. He is looking at one protein in particular, called RPA, and its interactions with a commonly studied anti-cancer protein, p53.

"RPA is so critical because this protein is involved in almost all DNA metabolic processes, which is unusual", Dr. Yue Zou, professor of biochemistry and molecular biology, explained. "Most proteins just focus on one or a few pathways."

The RPA protein can influence other proteins by its phosphorylation, a process in which a phosphoryl group is added. Phosphorylation changes its activity as well as the pathways involving many other proteins, such as p53. Moises's research is building on the research of Dr. Zou, who has done extensive study on the reasons for RPA phosphorylation.

"I always wanted to do something related to medicine," Moises said. "For me, the real beauty of everything is actually

Moises Serrano, Graduate Student
Yue Zou, Ph.D., Faculty Advisor



Cells expressing WT- or PD-RPA32 were treated with CPT and subjected to immunofluorescence microscopic determination of nuclear focus formation of Rad52.

inside our bodies -- the processes of DNA and coding for proteins and having a DNA repair machinery. It just fascinates me."

In the first part of his dissertation, Moises wants to show that the RPA protein tells cells to stop replicating by phosphorylation. This process is significant because it prevents damaged, mutated cells from continuing to multiply.

"This phosphorylation is a switch -- like on and off mechanisms -- of the cell, telling the protein to stop replication and give enough time for repair. That's what we hypothesize," Moises said.

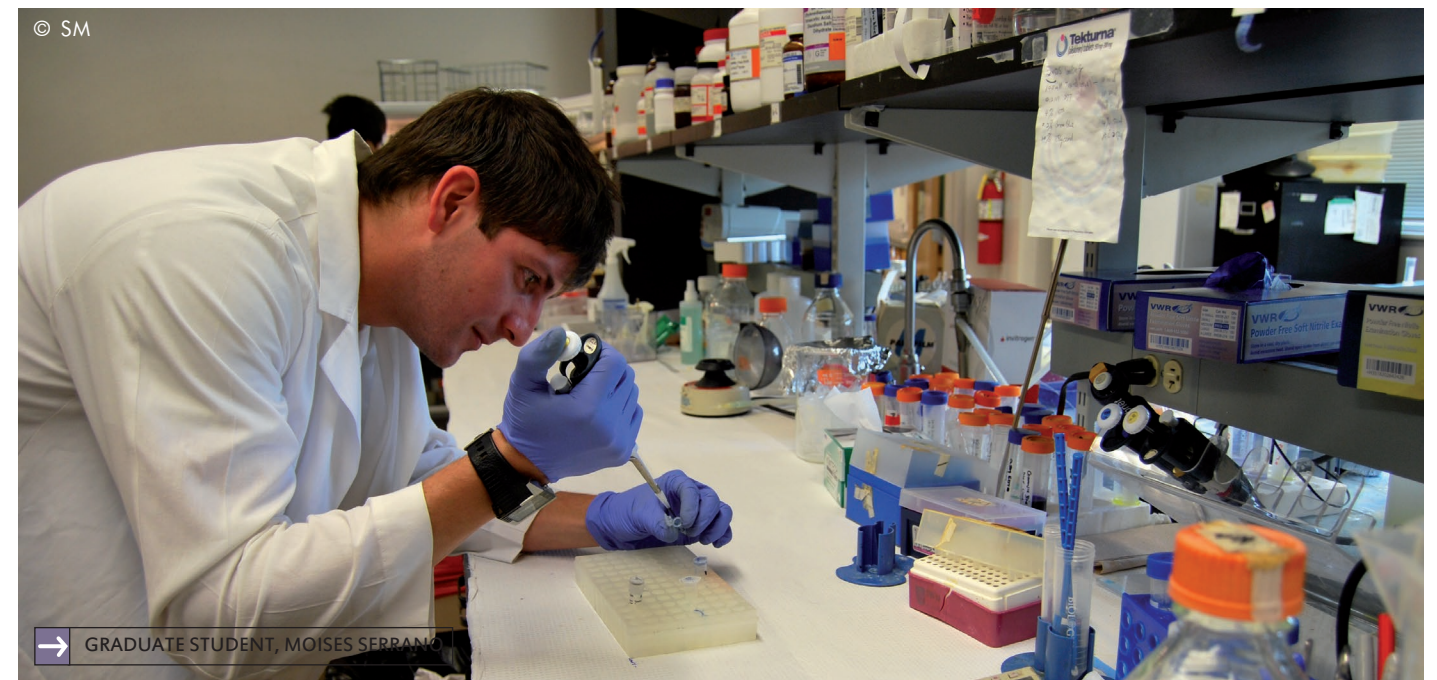
RPA is an especially important protein because it is involved in DNA replication and repair. The DNA in cells is constantly damaged by many different environmental and individual factors. Heavy sun exposure, smoking, carcinogens in food, and virus infection are all examples of ways DNA can be damaged.

"The DNA repair mechanism comes into play everyday of our lives," Moises said. "We have a mechanism that actually detects the damage and fixes it."

When DNA is negatively affected, proteins in the body, like RPA, can tell the cell to stop replication. Then, the protein either tells the cell to repair itself or, in the case of irreversible damage, the protein tells the cell to die off. In some cases, however, these processes don't occur properly. Instead, the damaged cell doesn't stop multiplying nor is it repaired.

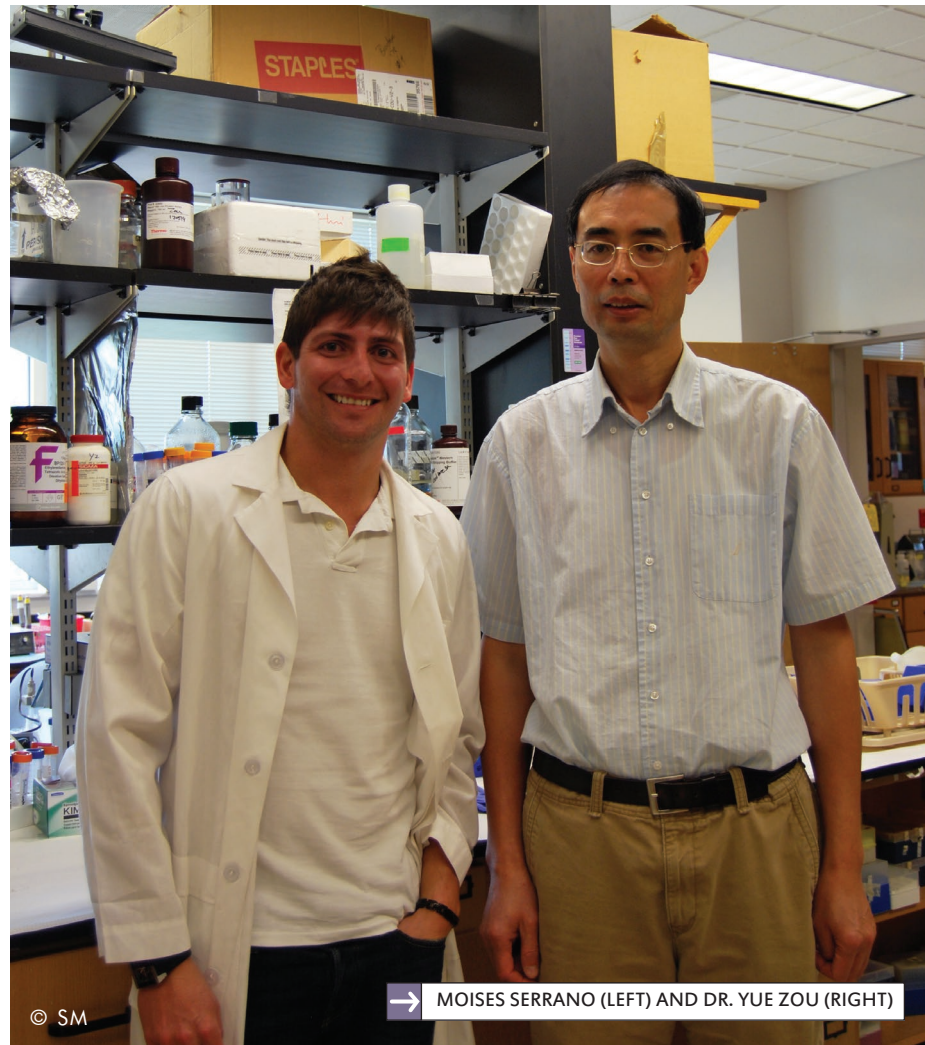
"If the DNA is not repaired, mutations can be generated in the DNA which may eventually lead to cancer," Moises explained. "... That's what makes cancer so harmful because it's your own cells, and they've lost the ability to stop replicating."

Moises has already shown that the phosphorylation of RPA is the key to getting cells to stop replicating until they've been fixed.



GRADUATE STUDENT, MOISES SERRANO

Courtney McKinney, Graduate Student
Michelle Lee, Ph.D. Faculty Advisor



→ MOISES SERRANO (LEFT) AND DR. YUE ZOU (RIGHT)

For the second part of his dissertation, Moises has set up two groups of cells - one with a protein that can be phosphorylated and another that can't. He expects to find that the cells with proteins that cannot be phosphorylated will have a far more difficult time entering apoptosis when necessary.

Moises hopes his research can help to be a stepping stone toward a different type of cancer treatment.

"We don't develop the products, but if somebody sees our research, maybe they can develop a specific small molecule that inhibits the phosphorylation of RPA or use it to sensitize the cancer cells," he said.

Moises published his work in *Oncogene*, a leading cancer research journal, in July. He also presented his research at the 2010 Appalachian Student Research Forum, taking home first place among Division III, which included graduate students of more than two years.

After completing the doctoral program, Moises hopes to get a cytogenetics fellowship and continue working in molecular biology.

"What I want to do is look at individualizing medicine," Moises said. "Basically if you get cancer, then they treat you differently than anyone else because you have a different genetic background, different gene expression. I want to be able to map the mutations that cancer patients may have so that I may better treat them."

This research is funded through a grant provided to Dr. Zou and a pre-doctoral grant given to Moises by the National Institutes of Health to conduct research on RPA phosphorylation. ●

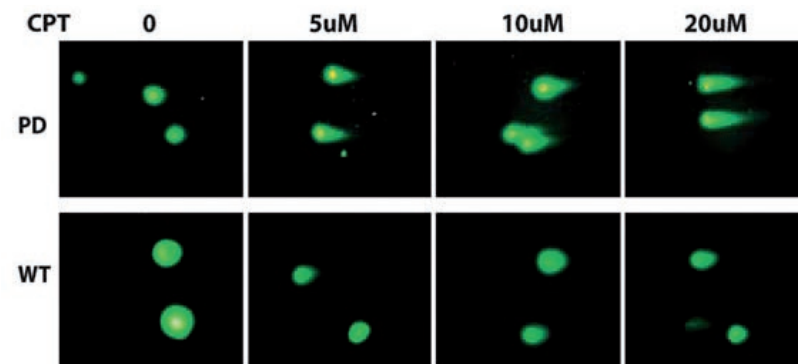
"Basically, [phosphorylation] is a bridge that communicates between the two mechanisms of replication and repair. If you're able to enhance this response, that's telling the cell 'don't replicate anymore' and give it enough time so that it can repair every old damage, it could be very influential for cancer treatment," Moises said.

But that's just part one of his dissertation. Moises is also looking at the function of RPA that tells cells to die off, a process known as apoptosis. He hypothesizes that without the ability to phosphorylate, the RPA protein won't be able to efficiently tell irreparably damaged cells to begin apoptosis.

Moises is using bone cancer cells for his experiments and using several different techniques to conduct his research. One method is called immunofluorescence microscopy, which involves using fluorescent dyes to color particular proteins. If the particular protein that is

needed for the process has been activated, it will be illuminated more brightly with the fluorescent dye, showing that the process did occur.

In another method, Moises introduced various stress conditions to the groups of cells, such as exposure to UV light or radiation, to damage the DNA, then waited to see how they reacted. Depending on the condition, the cell might or might not repair itself properly.



Stable U2OS cells expressing WT- or PDRPA32 were treated with CPT in a dose-dependent manner for 2 h. Comet assay under neutral conditions was performed to assess the efficiency of DSB repair.

NUTRITION on the .NET

By Mariam Ayad
Designed by Sara de Miguel

It's no secret that Ramen noodles and Chinese takeout are staples of any college student's diet. Courtney McKinney, a Clinical Nutrition Master's student in the Department of Allied Health Sciences, believes that doesn't have to be the case. She thinks the solution to getting college students to eat healthier is bringing the diet plan to them rather than leaving them to seek out a healthy lifestyle on their own.

"We know that universities have traditional education means, like having a class or having people meet and having an actual session, but we want online intervention ... because what we're seeing is people's participation in traditional education methods is declining," Courtney said.



→ DR. MICHELLE LEE (LEFT) AND COURTNEY MCKINNEY (RIGHT)

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Courtney worked with Dr. Michelle Lee on a new online health promotion program called “Bucs: Live Well.” They recruited students from across the ETSU campus to participate in the study. Thirty-seven students completed the study. Nineteen students formed the intervention group and participated in the “Bucs: Live Well” program while the remaining 18 students formed the control group.

The students in the intervention group received access to a different video every week for 10 weeks on a variety of nutrition issues, ranging from portion sizes to how to eat out. The video included a PowerPoint with audio and was about 20 minutes long. The intervention and control groups both received weekly email newsletters, which included only general health information.

The thrust of the pilot program was to meet college students where they are, using new technology.

“They could access the PowerPoint session and listen to the audio whenever they wanted to, whether it was 2 o’clock in the morning or 8 o’clock at night,” Dr. Lee said.

To evaluate the effectiveness of the health program, Courtney asked participants to fill out a survey on dietary habits before the study and again after the 10-week study was complete. The survey helped Courtney gather a variety of information about the students, including how often participants ate certain foods, perceptions about their own weight, how confident they were in their ability to make positive dietary changes, and perceptions about body image. The exploratory study was broad in its reach.

“We were measuring to see that, after all the nutrition interventions that we did, was there a difference in their attitude or their confidence? Did they feel like they could continue with the healthier habits later on?” Dr. Lee explained.

In the post-intervention survey, Courtney saw a significant improvement in self-confidence and mood. Students felt like their mood was more stable after the program. They also felt more confident and self-assured in their ability to make healthy choices and maintain the healthy habits they’d gained throughout the program, such as eating a little less each day, feeling that eating healthy was more important, and finding time to eat healthy.

“I feel like that a big complaint of college students is that it’s too busy, but we specifically saw improvements in those areas,” Courtney said.

Courtney found that based on the survey before the intervention, ETSU students are not unlike other college students across the country. They aren’t eating enough fruits and vegetables and maintaining other healthy lifestyle habits, like regular exercise.



“We want online intervention because what we’re seeing is people’s participation in traditional education methods is declining.”

Courtney said “If we don’t do something, then we’re missing a huge opportunity to influence that population.”

Courtney hopes to see the “Bucs: Live Well” program become a part of the university culture.

“I would love to see this type of program become integrated into the freshman curriculum, just like we teach freshman how to study and how to be safe with alcohol and drugs,” she said. “We teach all these other things — why aren’t we teaching this, too?”

Dr. Lee wants to continue offering the “Bucs: Live Well” program during future semesters and even open it up to faculty and staff, especially since the program got an overall positive reception from students this fall.

“We want to create a program that’s appealing to students, that makes it easy to access health information, and that gives them the information they want when they want it without having to force it upon them,” Courtney said.

After graduation, Courtney will also be a registered dietician. Although she’s not sure exactly what jobs she plans to apply for, she knows she wants to work directly with patients and communities. ●

“We know that the college-aged population is unique,” Courtney said. “Through doing research, it’s really evident that this is almost the last opportunity to influence somebody’s lifestyle or how they’re going to be as an adult.”

Researchers call this stage “emerging adulthood. “It’s a period during which young adults are still receiving support from parents, but also receiving new freedoms. This leaves them to either explore new healthy lifestyles or stick to old bad habits, most of the time, for life.

“It just makes sense for nutrition experts to jump on this population and this specific window of time to help develop them into people who want to have positive dietary habits and healthy lifestyle,”

WHERE ARE THEY NOW?



GEORGE BECKHAM

Degree:
Kinesiology and Sport Studies, M.A. (Exercise Physiology and Performance Concentration)
Year of graduation: 2012
Program/Department:
Department of Exercise and Sport Science

What are you doing right now?

Sport Physiology and Performance, Ph.D. (Sport Physiology Concentration)
Location: Johnson City, TN

How has your Master’s degree helped you (personally and/or career-wise)?

While working on my Master’s degree, I realized that I am much more interested in research and teaching than I am in doing strength and conditioning. Without doing my Master’s degree at ETSU, I may never have realized that. I’ve grown a lot since being here in the program, both academically and personally, and look forward to the next three years in the PhD program here.

What advice would you give to current graduate students?

This is advice that has been given to me time and time again: Figure out what you want to be when you grow up, and spend as much time as you can outside of your degree requirements working toward that. The importance of the things you do outside of the minimum requirements can’t be overstated.

Why did you choose to pursue a doctoral degree?

I chose to pursue a doctorate because I have found that I am really interested in research and in teaching. The idea of the role of professor is something that I know will challenge and motivate me.

What do you hope to do after graduating from your current doctoral program?

Get a job! Ultimately, the goal is to get into a tenure-track position somewhere back in California where my fiancé and I are from.

Anything else you’d like to share?

I’m really lucky to be supported by my fiancé, family, fellow graduate students and some awesome professors, so at the very least, I owe them my gratitude. In reality, I owe them a lot more than that! ●



→ CHRISTINE WAXSTEIN

IN THE DIGITAL ERA

Christine Waxstein, Graduate Student
Karen Brewster, Faculty Advisor

By Mariam Ayad
Designed by Sara de Miguel

Christine Waxstein wants to revolutionize the costume design industry, taking it from pencil sketches and watercolors to computer-generated design. “Other areas of theater, like scenic design and lighting design, have pretty much adopted technology at this point already,” Christine, a Master’s student in the Department of Professional Communication with a focus on theatre, said. “It’s just been a slow evolution for the costume design industry to adopt using technology and incorporate it into the actual process.”

Costume design is a multi-step process. Although the use of digital technology in some phases, such as in research and organization, is widespread, costume designers have been more reluctant to adopt it in the illustration phase, which involves digital rendering of costumes. Christine hopes to change that with her thesis project.

The traditional illustration method involves sketching the performer by hand. The designer uses photos of performers or watches them on stage to get as close an interpretation as possible. Then, costume designers draw on clothing and accessories and finalize the images using watercolors. But there’s no “undo” button on a hand-drawn sketch. Computer software can give designers flexibility and accuracy when designing for shows.

“In addition to being a great tool for showing the director your ideas, it’s really great during the stages where you’re just trying to figure out your idea for a dance, to play around,” Christine said. “It’s easy, and I don’t have to erase anything or start over with watercolor. I can kind of change things up using the digital file, and it doesn’t hurt my original design.”

Using Adobe Photoshop Elements 8, Christine transforms a photo of a performer into a virtual paper doll, trying on clothing and experimenting with different styles. First, she takes a photo of the performer in form-fitting black clothing. Then she imports that image into Photoshop and makes it into a digital illustration by creating an outline of it.



Digital rendering by Christine Waxstein of dancer Cara Harker in *Too Late to Tango* from the ETSU Spring Dance Concert 2012

“It’ll be their actual proportions, whereas when you hand-draw, you’re just doing a rough estimate of what you see their figure as,” Christine said. “I like this way because I know that my illustration of them is pretty accurate to what they actually look like.”

Next, she uses Photoshop’s tools to color and shade the performer’s skin tone and features. She can also simulate what the lighting and set design will look like.

“Whatever the lighting designer is planning on, you can stage that in Photoshop, and if the set designers make an illustration

of the set, you can put that as the backdrop for your performer,” Christine said. “So with Photoshop, you can get a package deal of what it could look like on stage.”

Using computer-generated costume design can be especially useful for designers who are not on location. With full-length images of performers and a measurement sheet with the performer’s height, weight and other information, designers can create strikingly accurate renditions of what the final costume will look like.

“With this measurement sheet and their image, I know their proportions that I’m looking at, so I can actually piece together an outfit or design a full-on outfit that

I plan to construct and send that to the director, and it’s a really accurate portrayal of what they’ll be getting costume-wise,” Christine said.

Christine first learned about digital costume illustration during a United States Institute for Theatre Technology conference she attended during her first semester at ETSU. Since then, she has used computer software to create renderings of costume and make-up designs for several ETSU Division of Theatre and Dance productions. The ones she will present in her thesis are from the *Spring Dance Concert 2012*. Christine presented some of her work from the concert at the Appalachian Student Research Forum in the spring.

Christine Waxstein wants to revolutionize the costume design industry, taking it from pencil sketches and watercolors to computer generated design.

Although she is a quick learner herself, Christine admits it can be a challenge to begin the process of converting to digital design.

“I think it is difficult to first learn the program, but once you’re able to learn the steps and then to actually create the renderings out of still photographs, there are only a few steps within Photoshop,” she said. “It’s just becoming familiar with the tools and the actual program.”

Another hurdle is that there is no computer program created specifically for costume designers. Christine and others in the field have had to adapt other programs, like Photoshop, for use in costume design.

Already having mastered computer-aided costume design using Photoshop, Christine wants to take the industry to the next level. She plans to experiment with 3D software.

“Currently, in Photoshop, if you want to see a 360° view of the costume you have to take four different shots of the performer — the front, the two profiles and the back shot,” Christine explained. “That also means you have to create four different renderings. You can’t use the same file to create the different shots.”

A 3D program would allow costume designers to present their work completely in one place. Although this is a step beyond her thesis project, Christine hopes to work toward 3D digital designing in the future.

In the mean time, she’s looking forward to continuing her work with ETSU shows and excited about prospects after graduation.

“That’s one thing you can say about Christine — she’s a self-starter and very independent,” Karen Brewster, professor in the Department of Communication, said. “This whole thing is her own idea, her own inclinations, her own talents, and her ability to build on her talents.” ●



→ KAREN BREWSTER (LEFT) AND CHRISTINE WAXSTEIN (RIGHT)

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