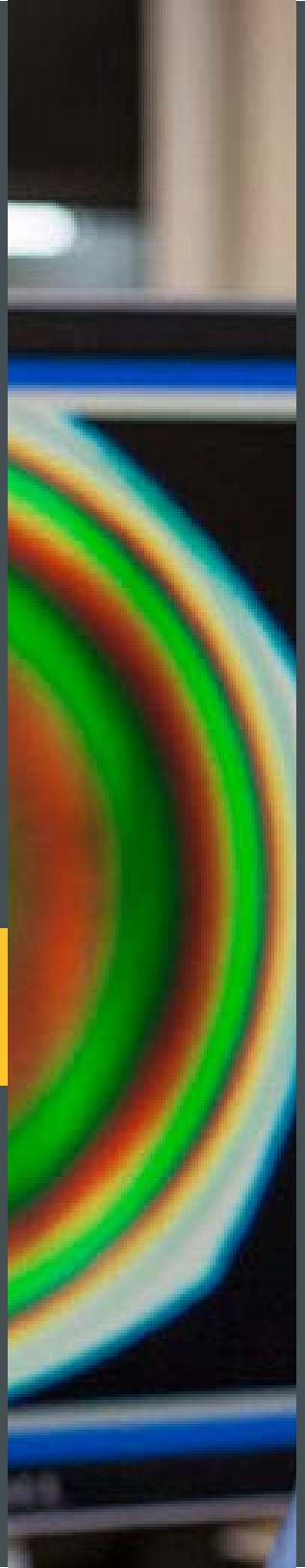
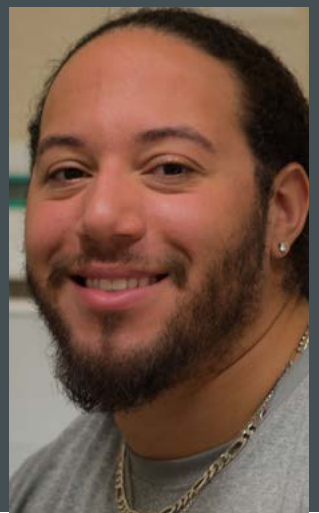
Research, Scholarly, and Creative Activities Annual Report

West Chester University

Academic Year 2013-2014

WCU
WEST CHESTER UNIVERSITY





Contents

When Things Fall Apart: Origins of Mechanical Fragility in Disordered Systems 4

Empowering Teachers and Students to Grow as Writers 5

Investigating the Helicopter's Role in the Vietnam War 6

Innovative Curriculum Aims to Enhance Understanding of Evolution 7

How Realistic are Master of Social Work Degree Field Requirements? 8

State-of-the-Art Textbook on The State of Gangs in America 9

Revolutionizing Student Teaching Training in Pennsylvania 10

Improving Struggling Students' Reading Habits 11

Can Maintaining Proper Electrolyte Balance with Supplementation Have Negative Heart Effects on Football Players? 12

Developing Speech and Language Content to Help Special-Needs Children Meet Common Core Standards 13

From Hands-On to Online Costume Design Instruction 14

Art that Mimics Birds in Flight 15

In Providing Valuable Assistance, Students Learn First-Hand about Research by Doing It 16

External Research Funding Fiscal Year 2013–14 19

West Chester University, a member of the Pennsylvania State System of Higher Education, is a comprehensive public institution serving more than 16,000 students. Founded in 1871 as a teacher training school, the University offers more than 200 undergraduate and graduate majors ranging from the arts and sciences to professional preparation in education, business, and the health sciences. More information about WCU is available on the University's website: wcupa.edu.

A Message From The President

West Chester University is committed to the development of knowledge through research and other scholarly and creative activities. In fact, the University community has embraced the teacher-scholar model which actively engages students in connecting the life of the mind to the world in which they live.

This report presents examples of our creative efforts as well as a summary of the resources secured during 2013-14 to support these critical activities. From the arts and sciences to professional fields such as business, education, and criminal justice, all academic disciplines benefit from active research and scholarship by faculty and students.

Foremost among these benefits are creating new knowledge to inform teaching, preparing students with the analytical skills highly prized by employers, and enhancing the Commonwealth's quality of life through discoveries that improve health, education, and civic outcomes and lead to economic growth through commercialization of intellectual property.

As you review the information in this report, I am confident you will appreciate the value of WCU's research enterprise to our students, Pennsylvania, and society. We look forward to partnering with you to extend the boundaries of the known ever further.

Greg R. Weisenstein, Ed.D.
President

A Message About Research

Greetings, and happy 2015 to all of you!

You may be asking, "Why is West Chester University distributing a report that just talks about research? They write a lot of reports already, and I know that all universities say they do research in one form or another. So why is this necessary?"

Thanks for asking.

It's because research IS that important. It's important enough to highlight in its own report, because faculty-led research contributes to so many aspects of a university's mission.

Academic research is an abbreviation for "research, scholarly, and creative activities." It allows faculty to discover new knowledge, expand their skills, and deliver solutions to real-world problems. Just as importantly, faculty use research to inform their classroom teaching with the latest information, so our students benefit fully from this expertise.

Faculty can also provide opportunities for our students to participate in research, too. This lets the students apply what they learn in the classroom to practical problems and issues. By doing so, students gain marketable competence that employers value.

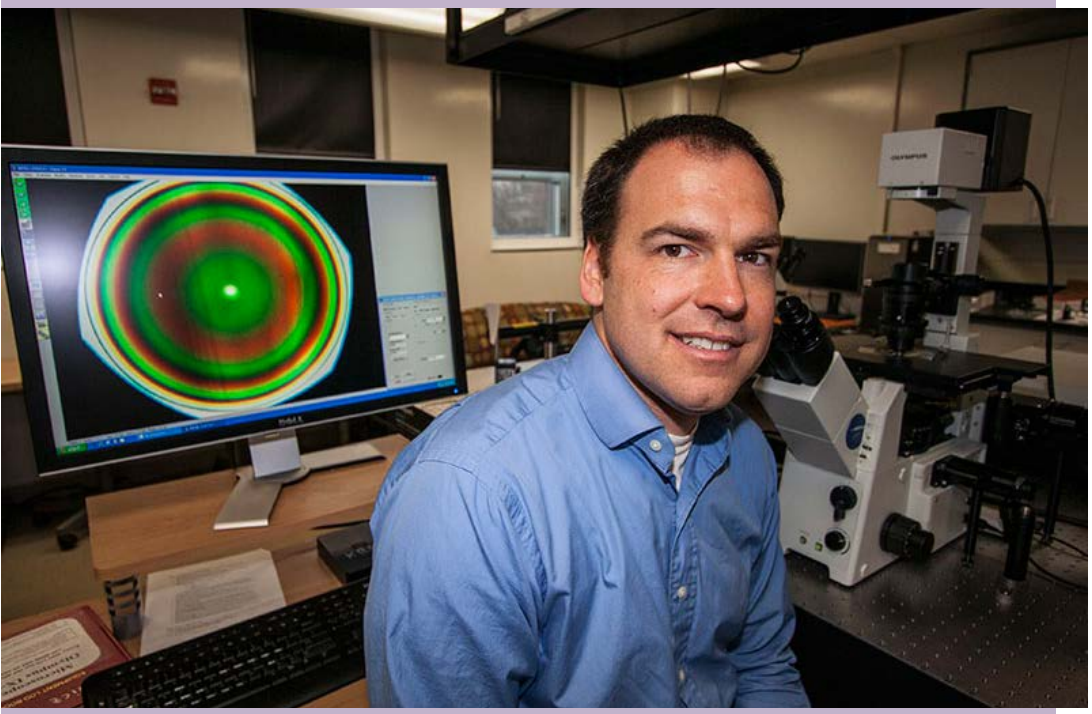
Academic research is currently under intense scrutiny in this country. Some people believe that research takes away resources from conventional classroom instruction, or that faculty don't have to do research to be good teachers.

None of this could be further from the truth.

Quality teaching plus quality research equals a complete educational experience. WCU faculty provide this to our students every day. The examples in this report are only a few. We hope you will be motivated by these faculty and students to learn more about how you can participate in research with us.

Gautam Pillay, Ph.D.
Associate Vice President for Research and Sponsored Programs

When Things Fall Apart:
Origins of Mechanical Fragility in Disordered Systems



Kevin B. Aptowicz

"The experimental techniques we are utilizing—video and fluorescence microscopy, optical system design and interactive data language programming—are well within the grasp of undergraduates."

At the atomic level, most of the world's materials can broadly be divided into those that are fairly ordered and those that are not. Kevin B. Aptowicz, associate professor of physics, likens the difference to supermarket apples arranged neatly in a pyramid vs. those dumped into a bin.

Since 2007, Aptowicz—the recipient of WCU's 2013 Distinguished Sponsored Research Award—has worked with nearly a dozen undergraduates in his laboratories at WCU and, during summers, at the University of Pennsylvania. Their goal: to understand what he calls "the mechanical fragility in disordered solids." Disordered solids include a vast array of materials that structurally appear similar to liquids but have solid-like properties; common examples are shaving cream, butter, peanut butter, jelly, mustard, and mayonnaise.

"If we could get a better grasp of how the structure of disordered materials at the microscopic level leads to their rather unique physical properties, we could use this knowledge to design new materials," says Aptowicz, who has presented his and his students' work at conferences and in peer-reviewed journals.

Funded by a National Science Foundation research grant, Aptowicz currently is investigating the properties of disordered solids by 'poking' them with an infrared laser beam and studying how they respond. He hopes his efforts with undergraduate researchers will inform our understanding of how disorder materials mechanically fail.

"The experimental techniques we are utilizing—video and fluorescence microscopy, optical system design and interactive data language programming—are well within the grasp of undergraduates," says Aptowicz. "Yet the experiments are truly addressing an open and important question in the field of soft-condensed-matter physics."

Empowering Teachers and Students to Grow as Writers

Since 1980, the West Chester University-based Pennsylvania Writing and Literature Project (PAWLP) has provided professional development for thousands of teachers K-16. One of the oldest sites of the National Writing Project (NWP), PAWLP believes that teachers who write are better teachers of writing. PAWLP creates opportunities for teacher collaboration, inquiry into best practices and supports teachers and student-writers in southeastern Pennsylvania.

Building upon previous research, PAWLP recently engaged in two funded projects:

Valley Forge National Park Young Writers summer day camp: Funded by the National Park Foundation, PAWLP teachers guided elementary school children as they immersed themselves in primary sources at Valley Forge to uncover untold stories and events.

Bristol Township (PA) high-needs elementary school: Funded by the National Writing Project, during the 2013-14 academic year, PAWLP provided professional development for 3rd- through 6th-grade teachers.

"We help teachers understand the difference between assigning and teaching writing by encouraging teachers to embrace the writing process with their students," says Mary Buckelew, professor of English and PAWLP director. "We promote a writing philosophy that encourages teachers to write, to share and to model their own writing processes for students.

By the end of the school year, says Buckelew, the Bristol Township students' writing had improved: "Students applied many of the lessons their teachers modeled, including writing more engaging lead sentences."

That was also apparent at the Valley Forge summer day camp. "When the breeze is blowing," wrote Yuting Pu, a fourth grader from the Hillside Elementary School in Berwyn, "I feel like I can hear the same sound the soldiers heard."

Mary Buckelew

"We help teachers understand the difference between assigning and teaching writing. . . ."

Robert Kodosky

Investigating the Helicopter's Role in the Vietnam War

If the Jeep was the American GIs' iconic World War II transportation mode, it was the helicopter in Vietnam. Meanwhile, no U.S. region played—and continues to play—a greater role in the development and production of rotary-wing aircraft than the Philadelphia area.

That is why the American Helicopter Museum & Education Center in West Chester and the WCU College of Arts and Sciences provided funding and, in November, collaborated with the U.S. Defense Department and Army War College to host "The Vietnam War: A 50th Year Commemoration of the Helicopter War."

About 200 veteran soldiers and pilots, military experts, retired engineers, professors, and students attended the all-day event in the university's Philips Autograph Library.

"In Vietnam, helicopters represented a perfect mix in terms of existing technology and the need for it," explains Robert Kodosky, an associate professor of history who teaches diplomatic and military history.

Without established frontlines, helicopters shuttled platoons across rugged terrain to conduct remote search-and-destroy missions against the Viet Cong and North Vietnamese Army—and then removed them several weeks later. Says Kodosky: "Soldiers viewed helicopters as their saviors"—partly because they reduced fatalities by cutting the average time for injured GIs to be medivacked out to just two hours.

Kodosky's undergraduate students—who already have written smart-phone application narratives for the museum's exhibits—are continuing to catalogue and archive documents and artifacts donated to the museum related to helicopter developers, including local pioneers such as E. Burke Wilford Jr. and Harold Pitcairn, and military personnel who used them.

"From a historian's viewpoint, it's virgin territory," says Kodosky.

"In Vietnam, helicopters represented a perfect mix in terms of existing technology and the need for it."

Innovative Curriculum Aims to Enhance Understanding of Evolution

Susan Johnston

Even though Darwin's theory of evolution is more than 150 years old, many people do not completely understand it—including college science students.

"It's not that they aren't open to understanding evolution. . . ."

"It's not that they aren't open to understanding evolution," says Susan Johnston, professor and chair of the Anthropology & Sociology Department. "But even after completing basic introductory life science courses, they often don't fully understand evolution, either as a scientific concept or process."

Citing one common misconception, Johnston notes that individuals do not pass on physical changes they develop in their lifetimes to their offspring. Giraffes, for example, did not "grow" longer necks to reach higher leaves, and then pass that trait on to the next generation. Instead, thanks to genetic variations that make every giraffe unique, those that had longer necks ate better and were able to pass that more successful trait on to their descendants.

Funded by the National Science Foundation, since September 2013 Johnston has been investigating whether students of her introduction to biological anthropology course better grasp evolution via an innovative curriculum that stresses inquiry-based, hands-on laboratory experiences. In one laboratory, for example, they examine simulated samples from a population hypothetically "exposed" to HIV and then conduct tests to determine why only some individuals become infected based on genetic variants that affect HIV susceptibility.

Johnston and her project team at WCU also are collaborating with three external advisors—professors at the Universities of Indiana, Kentucky, and Massachusetts—who are administering the curriculum's evolution concepts survey in their more traditionally taught introductory classes. Based on the first year's results, the WCU curriculum seems to be making a difference.

How Realistic are Master of Social Work Degree Field Requirements?

Page W. Buck

In addition to 48 classroom-based credit hours, for decades master's degrees in social work (MSW) candidates have had to work extensively at field practicum sites—16 weekly hours during their first two semesters and 20 to 24 weekly hours their second year—as well as meet weekly for an hour with a supervisor.

How many students, wondered Page W. Buck, the chair of WCU's Graduate Social Work Department and director of its MSW Program, can do all that?

Many do not, according to a first-of-its-kind study conducted by Buck and her consultant, Hood College associate professor Lynda Sowbel. Funded by the American Foundation for Research and Consumer Education in Social Work Regulation, their survey of 768 MSW candidates at 25 U.S. universities found that: 20 percent do not keep accurate field logs; 51 percent do not always complete their weekly field hours; and a quarter do not get weekly supervision—and those who do only meet with their supervisors for an average of 33 minutes.

"This raises serious questions about what we are asking of our students and—since no one has empirically quantified how much field training is necessary—whether or not the current system is producing qualified, competent social workers," says Buck, who hopes to apply for future grants to study those questions.

Also, in follow-up interviews conducted by Buck's graduate students, respondents said that those with the most fortunate financial situations—living with their parents or supported by a spouse—were those most likely to complete the required training.

"For an institution like West Chester," says Buck, "that raises an important question about accessibility."

"This raises serious questions about what we are asking of our students . . . and whether or not the current system is producing qualified, competent social workers."

State-of-the-Art Textbook on *The State of Gangs in America*

Although their numbers have declined somewhat since their mid-1990s peak, nationwide today there are still about 30,000 street gangs with nearly a million gang members.

"If you are a criminal justice major, whether you become a police, juvenile probation, corrections, or parole officer, a school resource officer, an attorney or social worker, it is important to understand gangs and how to deal with the gang problem in the community," says Christopher J. Przemieniecki, assistant professor of criminal justice.

Most gang textbooks are outdated, says Przemieniecki, who teaches a special topics course, 'Gangs in America.' To fill that gap, next year Kendall Hall Publishers will publish *The State of Gangs in America* by Przemieniecki and Mario L. Hess, professor of criminal justice studies at St. Cloud (MN) State University.

The book includes chapters on: the tools and networks that law enforcement authorities use to thwart street gangs; the evolution of laws to address the problem; and how some gang members briefly join the military to obtain training applicable to conducting gang activities.

The book will also feature a chapter on gangs and mass media—including both how film, TV/cable, music, video games, and the news media portray street gangs and how street gangs use social media.

"Despite media reports to the contrary, our research shows that street gangs do not use social media as the primary method of recruiting new members," says Przemieniecki, a gang-and-media expert. "What they do use is Facebook, and even their own websites, to generate an interest among youth in the gang lifestyle that they hope will enhance their recruitment efforts."

Christopher J. Przemieniecki

"…What they do use is Facebook, and even their own websites, to generate an interest among youth in the gang lifestyle…."

Revolutionizing Student Teaching Training in Pennsylvania

Karen Johnson

Sally Winterton (left) and Karen Johnson

"A huge difference is the co-planning that occurs before the co-teaching."

WCU's College of Education—the state system's largest producer of certified teachers—is radically changing its capstone student teaching experience.

Traditionally, undergraduate teacher candidates begin by observing and gradually assume classroom teaching responsibilities. To enhance both teacher training and student achievement, WCU teacher candidates are now co-teaching with their cooperating teachers the entire 15 weeks.

Funded by a Pennsylvania State System of Higher Education grant, the College of Education has been phasing in such innovative teacher prep changes based on previous research which found that a significantly higher percentage of students met state reading and math proficiency standards in classrooms where co-teaching with a student teacher occurred—compared to students taught in classrooms with traditionally trained student teachers or those exclusively taught by certified teachers.

"The data are really exciting," says Karen Johnson, associate professor and coordinator of field experiences in the Department of Early and Middle Grades Education.

Sally Winterton, recently retired associate professor and interim associate dean of the college, and Johnson were trained to supervise student teachers and a select group of cooperating teachers from local school districts using the co-teaching model.

For the 2015 spring semester, WCU expects to have 75 pairs of student teachers and cooperating teachers co-teaching—including in some districts that now only hire new teachers who have co-taught.

"A huge difference is the co-planning that occurs before the co-teaching," says Johnson. "There are also two adults teaching together and more opportunity for small group instructions, including working with children who need either remediation or more challenging assignments."

Improving Struggling Students' Reading Habits

Katie Solic

"They need to be able to say these are my strengths, these are my roadblocks and I'm going to use certain strategies regularly because I know I will have better outcomes."

A lot of reading instruction focuses on literacy skills and text content—making sure, for instance, that children understand the sounds and meaning of words.

Recent research also suggests that "executive function" plays an important role. Some students' reading comprehension lags due to poor time management and organizational skills, including skimming text or skipping pages.

Katie Solic, assistant professor of literacy, is investigating how middle-schoolers at a specialized independent school for students with learning differences are learning to address their executive function roadblocks.

Funded by a grant from the Pennsylvania State System of Higher Education, Solic has interviewed 15 students—five each from the 6th, 7th, and 8th grades—to determine how they believe the school has helped them to build better reading habits. Solic is combining information gathered from these qualitative interviews with quantitative student assessment data.

The goal: to identify best practices that administrators, teachers, and parents can use to help children with learning disabilities enhance their reading and overall learning skills.

"Besides discovering how to better teach kids executive function skills for reading, we are finding out about how the students come to take ownership of themselves as learners," says Solic. "They need to be able to say these are my strengths, these are my roadblocks and I'm going to use certain strategies regularly because I know I will have better outcomes."

As one eighth-grader told her: "After my teachers got me to slow down, I realized I could make sense of what I was reading and that made me think differently about myself."

Can Maintaining Proper Electrolyte Balance with Supplementation Have **Negative Heart Effects on Football Players**?

Sandra Fowkes Godek, professor of sports medicine and director of the university's HEAT (Heat Illness Evaluation Avoidance and Treatment) Institute, is the nation's leading expert on fluid and electrolyte replacement in football players.

Through more than a decade of research involving collegiate and professional football players, she has demonstrated the benefits of replacing the significant sodium losses that football players experience during summertime pre-season practices. Drinking customized amounts of electrolyte solutions containing sodium minimizes chronic dehydration, maximizes recovery, and greatly reduces the incidence of exercise-associated muscle cramps.

"Given the known ability of sodium intake to increase blood pressure, however, some players have asked about potential cardiovascular impacts," says the professor of sports medicine who has worked with the Philadelphia Eagles, Flyers, Sixers, and Union pro sports teams.

Funded by a Pennsylvania State System of Higher Education grant, to answer that question last summer she and one of her graduate assistants replicated some of the sodium-replacement studies she has done with the Eagles with a dozen West Chester football players. Following them before and during the first nine days of training camp, they took various measurements to determine if sodium supplements affected the athletes' blood pressure and heart rates.

They determined there were no differences in systolic and diastolic blood pressure levels or in the resting heart rates of the football players regardless of whether they had taken low or high levels of sodium supplements.

"This is good news," says Fowkes Godek. "It shows that, during the preseason, football players can consume tremendous amounts of sodium without negatively affecting their cardiovascular systems."

Sandra Fowkes Godek

"Given the known ability of sodium intake to increase blood pressure, however, some players have asked about potential cardiovascular impacts."

Jennifer Walsh Means

"…creating the goals gave our students a much better understanding of how to work with special needs students. I also think their work really put West Chester on the map."

Developing Speech and Language Content to Help Special-Needs Children Meet Common Core Standards

Sixty-five percent of all speech therapists work with school children. Yet WCU's Department of Communication Sciences and Disorders, which is Pennsylvania's largest speech therapy program, is among the minority of such departments that provide specific courses to prepare students to work in school-based settings.

Building on that strength, 28 of the department's students recently developed speech and language goals and objectives for teachers to enable them to help children with special needs meet the widely adopted Common Core State Standards.

The work was funded by Goalbook, a San Mateo, California-based online provider of professional development content that has been used by more than 40,000 school teachers in more than 300 U.S. school districts. The Goalbook Toolkit integrates such elements as Common Core standards, strategies, and model individualized education programs (IEPs) for students—and now incorporates four speech and language modules initially created by Means' students. Included are such categories as articulation and both expressive and receptive language.

"Because Goalbook provides very specific details about adaptations and accommodations, creating the goals gave our students a much better understanding of how to work with special needs students," says Jennifer Walsh Means, associate professor and director of the department's clinical services. "I also think their work really put West Chester on the map."

Adds Daniel Jhin Yoo, Goalbook co-founder and CEO: "It was in important milestone for us to be able to offer our first speech and language content, and it was our most requested area of content when we first released it.

"Overall, I was really impressed with the West Chester students' contributions."

Constance Case

From **Hands-On to Online** Costume Design Instruction

It is hard to imagine anything more hands-on than designing theatrical costumes. Yet, thanks to two distance-education grants from WCU and its College of Visual and Performing Arts, Constance Case will be conducting her costume design and history course completely online during the spring 2015 semester.

"It's about increasing accessibility," says the assistant professor of costume technology and design. "Many professional costume designers are creating their images using Photoshop, and my students will be using such software, building collages or drawing their creations.

"The only difference is that they will then post their designs online, and critiques and discussions will be conducted electronically."

Case, a professional costume, hair, and makeup designer, has worked on scores of productions at various professional theaters, colleges and universities in five states, as well as at the John F. Kennedy Center for the Performing Arts and the National Archives in Washington, D.C.

To prepare the online course, Case worked with WCU's Distance Education and Information Services offices; took online courses herself; and attended several distance-learning conferences.

To enhance learning, she has also already incorporated online features into other courses, including introduction to stage makeup. Her students used to compile bulky photo-collage albums of examples of classic makeup styles. Now they use Pinterest—a free social media image-sharing service—to submit makeup images culled from the Internet.

"I can't teach the way I did 15 years ago," Case says. "The students wouldn't get it or process it as easily. They're very comfortable with the technology, and it gives them a lot more options and it's improving the quality of their work."

"I can't teach the way I did 15 years ago."

Art that Mimics
Birds in Flight

Erica Loustau

Erica Loustau, assistant professor of sculpture, is fascinated by how certain birds, including pigeons and starlings, turn and swoop en masse in tight, three-dimensional formations. Reacting to each other's slight movements rather than to a lead bird, the flock appears as a single, pulsating organism.

For the past seven years—at sites ranging from regional art museums and university galleries to the federal courthouse in Wheeling, West Virgina and Philadelphia International Airport—Loustau has explored this phenomena in a series of multi-media installations. "It happens," notes Loustau, "at both the micro level with birds and insects and also on the macro level with contemporary human culture. As we build Internet social-media networks, we swarm together around news flashes or current trends."

Her largest installation has been "Exodus: Canaries Fleeing the Coal Mine," on view August 2013 to June 2014 at the Delaware Center for the Contemporary Arts (DCCA) in Wilmington. Created by Loustau with suspended lines of monofilament in the cavernous former factory building, two thousand yellow paper birds flowed overhead in a 100-foot-long avian stream.

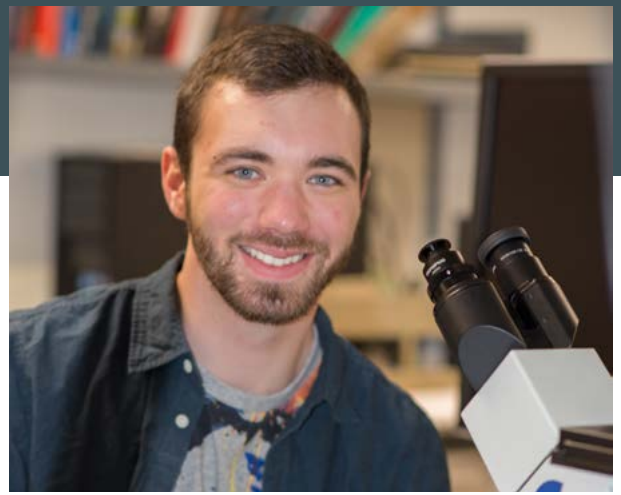
Funded by a WCU University Research Funding grant, the installation was viewed by hundreds of DCCA patrons and WCU art students—and was so popular it was held over an additional five months.

"People have long observed animals for signs of impending hazards or evidence of environmental threats," explains Loustau. "The canary was used as a sentinel by coal miners, giving advanced warning of the presence of hazardous gas. As we observe changes in the world around us, are we paying attention to the sentinels?"

"As we observe changes in the world around us, are we paying attention to the sentinels?"

In Providing Valuable Assistance, **Students Learn First-Hand** about Research by Doing It

For students, there is a world of difference between reading about or replicating the results of research and getting hands-on experience by actually doing it. The experience also broadens their horizons in terms of future academic or career possibilities.



Michael Ryan

That is the assessment of a number of West Chester University students—both undergraduate and graduate students—who have played important roles in furthering the research and scholarship of professors highlighted in this report.

"Doing research as opposed to being a student is such a different experience," says **Michael Ryan,** a physics major from Bensalem. "You have a lot more independence and you have to do extra work to understand the concepts, which takes you out of your comfort zone."

Adam Farence

Thanks to a National Science Foundation grant procured by Kevin B. Aptowicz, associate professor of physics, during the past two summers Ryan earned money while working in Aptowicz' laboratory investigating "disordered solids"—materials that microscopically appear as liquids but function more as soft-matter solids.

In 2014 Ryan made a presentation on his research in Denver at the American Physical Society March Meeting—an experience he will repeat at the APS' 2015 March meeting in San Antonio. "As an undergraduate it's a little terrifying speaking to people who are more experienced than you, but it's also very exciting," says Ryan, who, as part of a three-and-two-year program, is currently also working on a mechanical engineering degree at Philadelphia University. "Sitting in the same session and

continued on page 17

Jerome McKeiver III

"You have a lot more independence and you have to do extra work to understand the concepts, which takes you out of your comfort zone."
— Michael Ryan

"Mentored by Dr. Robert Kodosky, I was able to go beyond the classroom and bring history to life."
— Adam Farence

Students Learn First-Hand *continued from page 16*

hearing about things going on in the field that I wasn't familiar with was also great experience."

Prior to working with Aptowicz, Ryan had never considered graduate school. Now, however, after initially getting a job, he says, "I'm really interested in ultimately going into research."

Adam Farence's research this past summer into the contributions of local helicopter pioneer E. Burke Wilford Jr. resulted in an exhibition displayed in the Francis Harvey Green Library. Pieced together by Farence, a senior history and French major from Enola, Pennsylvania, the exhibit was showcased this past November during the WCU/American Helicopter Museum & Education Center's one-day conference on the helicopter's crucial role in the Vietnam War.

A visit to the helicopter museum piqued Farence's interest in Wilford, a Merion resident. Funded by a competitive $1,500 WCU Summer Undergraduate Research Institute award, Farence interviewed Wilford's son Robert and poured through artifacts his son provided, including model gyroplanes, photographs and an unpublished 80-page memoir written by the elder Wilford.

"His story is underrepresented," Farence told the *Philadelphia Inquirer.*

"Mentored by Dr. Robert Kodosky, I was able to go beyond the classroom and bring history to life," says the editor-in-chief of WCU's student newspaper, *The Quad*. "History is understanding how different events relate to each other. Finding out how this man related to the larger historical picture regarding the development of the helicopter was a treasure in and of itself.

"Now that I've gotten a small taste of what graduate work is like, I've applied to West Chester's master's degree program in communications studies."

For the past five years, former WCU football player **Jerome McKeiver III** has assisted with the research of Sandra Fowkes Godek, professor of

continued on page 18

Students Learn First-Hand *continued from page 17*

"There isn't a day that goes by that I don't learn something from Sandy. I've gained a sound knowledge of the physiology and underlying effects of fluid and electrolyte balance and how that might impact athletes and others."
— Jerome McKeiver III

"…the experience gave me a good idea how the Common Core State Standards can apply to speech therapy and how to develop goals that incorporate those standards."
— Heidi Harbach

sports medicine and director of the university's HEAT (Heat Illness Evaluation Avoidance and Treatment) Institute.

With Fowkes Godek as his mentor, the Ocean City, New Jersey, native earned his B.S. in athletic training in 2013 and is currently working on a master's degree in exercise and sport physiology with a concentration in athletic training. He has collected and analyzed data from West Chester University athletes and the athletes of almost every Philadelphia professional sports team.

"The experience has helped me exponentially," says McKeiver, who also is an injury prevention specialist with Comprehensive Injury Prevention Solutions, a Lansdale-based company that helps utility corporations keep their employees healthy. "There isn't a day that goes by that I don't learn something from Sandy. I've gained a sound knowledge of the physiology and underlying effects of fluid and electrolyte balance and how that might impact athletes and others."

Although the 23-year-old is CIPS' youngest employee, he says, "My boss already refers to me as their heat illness expert."

Only half-jokingly, McKeiver tells Fowkes Godek that he may want to replace her as a professor when she retires. "I do enjoy teaching," he says. "As part of the program, even when I was a senior I had two juniors who were constantly asking me questions. It forces you to constantly grow and think outside of the box."

As part of her M.A. degree in communicative disorders assignments, **Heidi Harbach** was one of more than two dozen graduate students who developed speech and language goals that enable teachers to help students with special needs to meet the Common Core State Standards. Working with Jennifer Walsh Means, associate professor of communication sciences and disorders, Harbach created content for Goalbook, an online provider of professional development content for educators.

Previously, Harbach double-majored in music and psychology as an undergraduate at Millersville University and then worked seven years with children who have autism spectrum disorders.

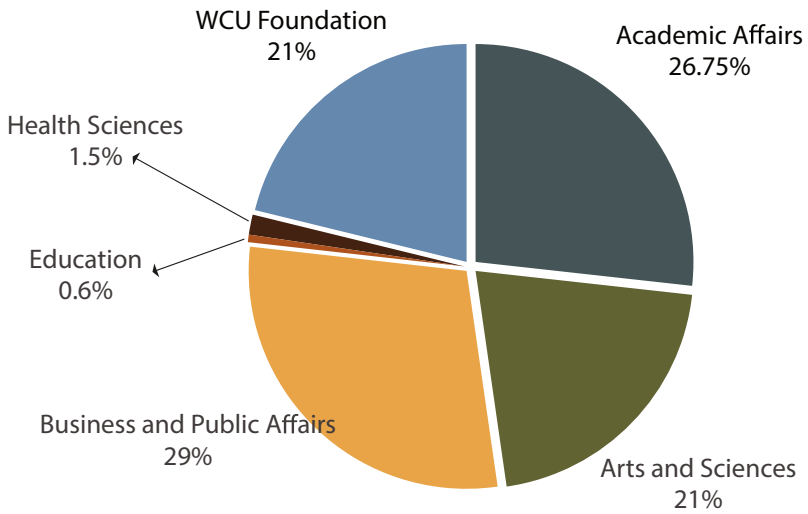
"Not coming from an undergraduate educational background, the experience gave me a good idea how the Common Core State Standards can apply to speech therapy and how to develop goals that incorporate those standards," says Harbach, who received her master's degree last August and now is a speech therapist for middle school students in the Governor Mifflin School District in Berks County, Pa. "It was very helpful because I have to incorporate those standards when I create each student's individual educational plan—which is exactly what we learned when we worked on the Goalbook project." ■

External Research Funding Fiscal Year 2013–14

College / Administrative Unit	Submitted Proposals	Requested Funding
Academic Affairs	2	$207,288
College of Arts and Sciences	38	$4,876,548
College of Business and Public Affairs	2	$527,300
College of Education	5	$937,956
College of Health Sciences	13	$1,019,005
College of Visual and Performing Arts	2	$40,612
Facilities	1	$62,294
Student Affairs	2	$35,000
WCU Foundation	1	$10,000
Totals	**66**	**$7,716,003**

College / Administrative Unit	Received Awards	Received Funding
Academic Affairs	2	$494,642
College of Arts and Sciences	15	$387,714
College of Business and Public Affairs	3	$537,257
College of Education	2	$10,326
College of Health Sciences	4	$27,500
WCU Foundation	2	$391,555
Totals	**28**	**$1,848,994**

Funding by College / Administrative Unit



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