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* Cover photo by Dr. Lewis Owen
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**TABLE OF CONTENTS**

- Transformations: UC Graduate Students Teach Others to Teach Themselves .............................................01
- Distinguished Dissertation Completion Fellows ..........................................................05
- Excellence in Teaching Award ..................................................................................11
- The Graduate Poster Forum ..................................................................................13
- UC’s 2011 Fulbright Scholars ................................................................................15
- Research Innovation for Real-World Transformation ........................................07
- UC Graduate School Growth ..................................................................................23
- Letter from the Dean ...............................................................................................24
- UC Graduate Student Satisfaction ..........................................................................25
- Dissertation Listing ................................................................................................26

* Cover photo by Dr. Lewis Owen
This idea that learning requires collaborative and dynamic transformation applies strongly to success in graduate education. On the cusp of their professional lives, graduate students must learn to lead by drawing not only on their own strengths but also on those around them. They lead through listening to and empowering others.

“Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other.”

—Brazilian educator Paulo Freire, “Pedagogy of the Oppressed”

Four UC graduate students—Susan Allen in nursing, Mark Kohan in educational studies, Jason Hodson in business administration and Lauren Macke in art education—have each experienced a transformation in the process of working with others to improve their respective communities and departments.

SUSAN ALLEN
After working 25 years in the Clinical Research Center at Cincinnati Children’s Hospital, Susan Allen decided to pursue a PhD in nursing research at UC. She considered entering the program in the late 1990s after earning a master’s degree, but she put this goal aside to spend more time with her six-year-old daughter.

Later, when this same daughter entered UC’s undergraduate nursing program, Susan seized the opportunity to resume her own education. Her dissertation expands on a pilot study of the experiences of bedside nurses in leadership positions. What prepares and supports nurses as leaders in transforming the health care system? What barriers prohibit their advancement as such leaders? What sorts of caring relationships promote advancement? These are questions Susan seeks to answer in order to help position nurses as equal decision-making partners with doctors and administrators.

Decisions about nursing practice made closest to the point of care by the people caring for the patients (i.e., nurses) are better decisions,” Susan explains. This seems like a no-brainer. Yet over 100,000 people perish as a result of hospital errors that shared governance could eliminate.

Already Susan’s research has yielded success. One participating nurse in the pilot study remarks, “Knowledge gives you the opportunity to share and teach, which is huge for me because my knowledge doesn’t do anybody any good unless I share it.” This attitude exemplifies the philosophy of shared governance that Susan Allen believes—with good reason—will transform our health care system.

MARK KOHAN
The idea that shared governance is best for all extends from health care to education. Doctoral student Mark Kohan spends less time in the traditional classroom and more on building collaboration between UC and community partners.

In 2008 Mark trained at the Freedom Writers Institute in Long Beach, California. The institute develops methods to make learning, teaching and schooling more hopeful, meaningful and inclusive. “Participating in the institute was transformative for me and other teachers, as each of us was asked to be responsible for each others’ learning and to build stronger communities in and beyond our schools,” Mark recalls.

When his wife accepted a faculty position at UC, Mark entered the educational studies doctoral program and began working with area schools. “As I listened to the concerns of students and area educators, I realized that the institute’s methods would be a good fit for Cincinnati.” The Teaching Hope project was born.

Coinciding with the 50th anniversary of the Civil Rights movement, Teaching Hope makes use of Cincinnati’s rich cultural resources. In May, students and teachers from 18 area schools gathered to hear the Freedom Writers story and share their ideas for achieving social justice in their communities and schools.

That was just the beginning. In the months ahead the project will provide workshops, a summit, online networking opportunities and a guest speaker series. “Future work,” Mark says, “will continue to build capacity for social justice teaching and learning in ways that utilize teacher and student voices, knowledge, creativity, leadership and service in their schools and beyond.”

JASON HODSON
While Mark helped revamp Cincinnati’s
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Now working as a consultant, Jason is proof that the same soft skills he taught undergraduates yield success. “Consulting is nothing more than teaching,” he explains, “only the ‘students’ are experienced professionals looking to add value to their business.”

LAUREN MACKE
Practical concerns also informed Lauren Macke’s successful effort in transforming UC’s art education master’s program. Lauren explains that the program requires a paltry six studio credits, despite the fact that art education encompasses the full spectrum of arts. Practicing a wide range of art, Lauren believes, is an important part of becoming an adaptable and resourceful art educator.

In order to develop the practical aspects of art education, she instituted Art Education for Art Educators, a series of classes in which art education graduate students teach one another new techniques and mediums. “AEAE was the perfect solution,” Lauren says, “because not only were we sharing our skills with our colleagues, but we were also gaining more teaching experience.”

A supportive department and university educational system, a similar transformation was occurring across campus at the Carl H. Lindner College of Business. When MBA student Jason Hodson began teaching undergraduates, he already had years of experience as a Marine training troops. Yet the transition from military to civilian educator presented its challenges—namely, the difference in teaching methodology.

“Training Marines is direct, unflinching and immediate,” Jason recalls. “Mistakes are addressed with little concession to feelings.” He imported this methodology into his new job as a teaching assistant. Of his undergraduates, he expected excellence and tolerated no excuses.

While no one can fault him for encouraging high-quality performance, Jason quickly learned that an uncompromising approach to teaching has drawbacks. To reach his students, he had to transform his methodology to better accommodate each student’s situation and interests.

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Mark Kohan (far right) with Teaching Hope participants at the Cincinnati Freedom Center

For a summer class on art activism, Lauren Macke powers a sewing machine by pedalling Mark Kohan (far right) with Teaching Hope participants at the Cincinnati Freedom Center

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A robust and supportive department and university educational system, a similar transformation was occurring across campus at the Carl H. Lindner College of Business. When MBA student Jason Hodson began teaching undergraduates, he already had years of experience as a Marine training troops. Yet the transition from military to civilian educator presented its challenges—namely, the difference in teaching methodology.

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A robust and supportive department and university
The Graduate School recently established the distinguished dissertation completion fellowship to make their search for funding a little easier. The fellowship provides students with $20,000 and a full tuition scholarship to help them complete their dissertations by the end of the 2010-2011 academic year.

As a master’s student in Istanbul, Sema Kurtulus investigated T lymphocytes, or T cells, a type of white blood cell that is vital to immunity. Kurtulus has continued this research as a doctoral student at UC by exploring how these T cells, which play a key role in keeping pathogens in check, are themselves regulated.

Research for her dissertation, “Regulation of Bim in Effector and Memory CD8+ T Cells,” focuses on the Cytotoxic T cell, a subclass that targets viral infections. Sema seeks to discover why some Cytotoxic T cells survive a viral infection while others do not.

“An understanding of this process,” Sema says, “can open up new therapeutic strategies for a variety of patients.” If immunobiologists knew how the survival of these Cytotoxic T cells was regulated, they might be able to increase that survival rate when it might be beneficial to the host (e.g., to make vaccinations more powerful) or decrease it when it might harm the host (e.g., to manage autoimmune diseases).

“The implications of Sema’s work are profound,” says Dr. David Hildeman, the director of the UC Immunobiology graduate program’s. He adds that his advanced doctoral student is making progress on “one of the most pressing, but difficult, problems facing immunologists today.
Dissertation completion fellowships support outstanding students during the last stage of their research. Finding a means of support can be difficult for doctoral students who are close to finishing their dissertations, especially during tough economic times.

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For some people, math comes naturally. For others, even the simplest calculation is a struggle. In the summer of 2011, Lori Kroeger tried to figure out why.

For her dissertation, “Neural Correlates of Error Detection in Mathematics Facts” Lori used functional magnetic resonance imaging (fMRI) to see what happens in children’s brains when faced with a math problem. The 21 middle school students that took part in the study were presented with a math problem and a potential solution while being monitored by the fMRI. They were then asked to identify if the solution is correct. Lori checked for the accuracy and response time, as well as analyzed the neural data associated with the task. She expects that the fMRI data gathered in her study will shed light on the neural mechanisms that support math processing.

Yet Lori’s research is about more than revealing the inner mechanics of the brain. She explains, “By knowing how the brain biologically and cognitively processes numbers and quantity, we will gain a better understanding of how the brain supports mathematics learning and the subtypes of math disability.”

Lori hopes that this understanding will help educators develop mathematics curricula that works with the brain’s natural learning process, making those simple calculations easy for all.

“A question that has intrigued us since antiquity,” Saurabh Kulkarni says, “is why there is such tremendous morphological diversity in nature and how it is produced.” Morphological diversity is the variety of bodily structures and forms both within and between species, such as the various beak shapes and sizes of Darwin’s finches.

In his dissertation, “Evolution and Mechanisms of Developmental Plasticity in Spadefoot Toads,” Saurabh hopes to demonstrate, using spadefoot toads as a model, how changes in organisms’ development lead to morphological diversity, thereby allowing those organisms to survive new environments. Morphologists like Saurabh are interested, for instance, in how humans evolved to walk on two feet, thereby leaving their hands free to perform other functions.

Along with Dr. Ivan Gomez-Mestre, a professor of biology at Oviedo University in Spain, Saurabh is researching how the evolution of stress hormones alters larval growth and development among two types of spadefoot toad. Specifically, he is trying to understand how some toad species are able to accelerate tadpole development in drying ponds, whereas other cannot. If morphologists like Saurabh can explain the underlying process, they will be one step closer to accounting for nature’s endless diversity.
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MUK YAN WONG
Philosophy, PhD

When Hong Kong native Muk Yan Wong was 15, his father, who suffered from bipolar disorder, committed suicide. “I guess this is the reason why I am interested in the study of how emotions and moods affect our lives,” Wong says.

In his interdisciplinary dissertation, “The Mood-Emotion Loop,” Wong draws on philosophy, cognitive psychology and neuroscience to argue that emotions and moods are “adaptive mechanisms” essential to human survival. While emotions arouse bodily changes in response to external stimuli, moods change what external stimuli we notice. “The output of emotion (e.g., physiological and behavioral responses),” Wong states, “can be monitored by a mood in regard to its influence on our bodily condition, and the output of mood (e.g., cognitive biases) can affect how emotions appraise the environment.” By mapping the dynamic relationship between emotions and moods, which Wong calls the “mood-emotion loop,” he hopes to explain how these mechanisms affect the way humans act and the choices we make. He believes an increased understanding of these fleeting sensations will help us regulate these mechanisms, when necessary, to create a better quality of life for individuals like his late father.

SAMUEL ST. JOHN
Chemical Engineering, PhD

Hydrogen fuel cells are an amazing power source. They use no fossil fuel and expel only heat and water vapor. Yet because of their cost, these fuel cells can’t compete against traditional energy sources. Samuel St. John works to change that.

“I have always had an interest in sustainable forms of energy,” Samuel says. So much so that he left his job of five years—oral care research and development at Procter and Gamble—to pursue a PhD in chemical engineering. He now finds his work much more fulfilling: “Studying fuel cell catalysts is my initial and humble contribution towards solving the energy crisis.”

Hydrogen fuel cells currently use platinum as the catalyst, so a hydrogen fuel-cell engine that produces the same amount of energy as a combustion engine is three times as expensive. For his dissertation, “Hierarchical Electrocatalyst Structure Control to Study Cathodic Overpotential in Proton Exchange Membrane Fuel Cells,” Samuel works on fundamentally redesigning platinum-based catalysts to drastically reduce cost.

Once these fuel cells become an affordable alternative, they will revolutionize our everyday experiences. Samuel rattled off a few potential uses: “You can think of laptops that would run off of fuel cartridges never needing to be plugged in [to an electrical socket]. Or automobiles that only emit water.”

Samuel sees a bright future ahead: one powered by the cheap, green energy of hydrogen fuel cells.
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Therese draws heavily on her work experience. Examples of real-world situations help her students better understand textbook theories and principles. She also uses her business experience to come up with engaging classroom activities, such as role-playing and writing “mini-cases” that demonstrate real-world applications and capture the attention of her students. “I never wanted to miss a class because she made each lecture innovative and creative,” student Cara Novak insisted.

Never one to be content with giving the bare minimum, Therese always puts her students’ needs first. “On countless occasions, professor Sprinkle stayed after class to further discuss topics and cases with myself and other students,” says former student Lane Hart. “To me, this type of after-class interaction is an added bonus.”

Therese’s dedication to her students makes an impression on her peers, as well. Fellow teaching assistant Michael Urick shared an office with Therese and observed several class sessions. “I was so impressed with Ms. Sprinkle’s approach that I hope to model much of what she does in her classroom with what I do when I teach,” says Michael.

Therese’s impact on her students extends beyond the end of the quarter. Her students carry with them a mastery of business principles and an appreciation for the messy and complicated situations they will face in the real world. Look for Therese Sprinkle’s students in the next generation of business managers and leaders.

Excellence in Teaching Award

Therese Sprinkle
Business, PhD

Many students you see on campus are eager to make the jump from academia to the business world. Therese Sprinkle, now a third-year PhD student in management at the Carl H. Lindner College of Business, was excited to make the opposite move—returning to academia after 30 years in the business world.

“I interviewed and trained a lot of new employees, and I decided I wanted to go to the source to help them much earlier than when they entered their first jobs,” Therese explained.

Therese worked in the marketing research industry as an account executive servicing top consumer packaged goods firms such as the sister units of PepsiCo, Kimberly-Clark, Georgia-Pacific, International Paper and Philips Electronics. When Therese was asked at her going-away party at work if she was nervous about teaching, she responded that she was. She said she didn’t have any teaching experience.

Some of her team members laughed. “They reminded me that I had taught all of them over the years.”

Teaching in a collegiate setting, though, was a big transition for Therese. “It was very scary to put together my first class,” she says. “It was different than prepping for a client.” After teaching nine classes, Therese has grown more comfortable preparing classes, but she doesn’t want to get too comfortable. “I’m constantly changing class preparation, making sure that it gets my key points across.” When she finds something that doesn’t work, she’ll change it.

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Every year, graduate students from across UC’s many disciplines converge to share their research and hone their presentation skills. The Graduate Poster Forum serves as a “dress rehearsal” for many students, who will soon after present at regional and national conferences.

An initiative of the UC Graduate Student Professional Development Center, the Poster Forum also recognizes the best posters and presentations with a monetary award. This year over one hundred students presented posters, and of those thirteen winning posters were chosen from a wide range of disciplines. Topics for the 2011 award-winning posters range from public housing projects in Slovenia to the effects of recreation on cliff vegetation to drivers’ acceleration/deceleration behavior during a yellow light.

2011 Graduate Poster Forum Winners

Arts and Humanities
Ashley Bryan
Emily Roush

Life Sciences and Medicine
Nicholas Jury
Andrew Paluch

Physical Science and Engineering
Qingyi Ai
Amit Dongol
Mohan Jayatilake
Parveen Kumar
Qian Li
Srikoundinya Punnamaraju

Social and Behavioral Science
Christopher Carr
Amy Hobek

MFA Gallery
Shannon McPhee

Graduate Poster Forum Winner

ANDREW PALUCH
Cell and Molecular Biology, PhD

Don’t be intimidated by the medical jargon and magnified tissue images on Andrew Paluch’s poster. Andrew, a doctoral student in cell and molecular biology, won an award for the life sciences and medicine category at the 2011 UC Graduate Poster Forum more for his presentation than for his poster’s appearance. As Andrew explained to poster forum visitors, he conducts complex research with a simple goal: finding a treatment for prostate cancer, the second most deadly cancer for American men.

Andrew’s poster presents his research on a protein found at high levels in advanced prostate cancer, the Ron receptor tyrosine kinase. “Receptor tyrosine kinases are proteins on the cell surface used to activate specific body functions—for example, cell growth and migration,” he explains. “My project focuses on the Ron receptor’s role in both the prostate tumor and the surrounding tissue and immune system. Prostate cancer, like many cancers, is affected not only by the tumor itself but also by the surrounding tissue.”

Once Andrew pinpoints the role Ron plays in prostate cancer growth and spread, scientists will be able to develop multiple treatment methods. “We would able to target the prostate tumor as well as the surrounding tissue,” Andrew says. “In doing so, we would be able to limit Ron’s ability to support prostate tumor growth both from within and around the tumor.”

It’s no easy task to translate complex scientific research into a short presentation that all students and faculty can comprehend. Yet Andrew has a knack for explaining clinical data and biological concepts. “When I’m presenting a poster, I feel that I am telling a story,” says Andrew. “By keeping the audience in mind, I can shape the poster to allow the listener to logically follow my thought process without being bogged down with technical details.”
The Graduate Poster Forum

Every year, graduate students from across UC’s many disciplines converge to share their research and hone their presentation skills. The Graduate Poster Forum serves as a “dress rehearsal” for many students, who will soon after present at regional and national conferences.

An initiative of the UC Graduate Student Professional Development Center, the Poster Forum also recognizes the best posters and presentations with a monetary award. This year over one hundred students presented posters, and of those thirteen winning posters were chosen from a wide range of disciplines. Topics for the 2011 award-winning posters range from public housing projects in Slovenia to the effects of recreation on cliff vegetation to drivers’ acceleration/deceleration behavior during a yellow light.

2011 Graduate Poster Forum Winners

Arts and Humanities
Ashley Bryan
Emily Roush

Life Sciences and Medicine
Nicholas Jury
Andrew Paluch

Physical Science and Engineering
Qingyi Ai
Amit Dongol
Mohan Jayatilake
Parveen Kumar
Qian Li
Srikoundinya Punnamaraju

Social and Behavioral Science
Christopher Carr
Amy Hobek

MFA Gallery
Shannon McPhee

Graduate Poster Forum Winner

ANDREW PALUCH
Cell and Molecular Biology, PhD

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with Bruno Weil, where he discussed music and conducting—all auf Deutsch—with his professor and fellow students.

Thomas’ time in Germany included another unique experience: He collaborated with other Fulbright students to create and perform an entirely new composition for the Fulbright Conference in Berlin. Performers for the gala event included fellow UC student and Fulbright awardee Jackie Arrington, a master’s student studying flute performance.

Thomas’s Fulbright grant has given him an experience few others can claim: the rare privilege of conducting a premier performance.

Classics student, Sarah Lima, spent her time studying archaeology in southern Albania. A doctoral student, Sarah examined sites from the late Bronze Age to the Early Iron Age, roughly 1500-700 BC.

For most people, ‘archaeology’ inspires images of Ancient Egypt, Greece or Rome, but certainly not Albania. And therein lies the appeal for Sarah: As the area is less studied, there are many more opportunities for a graduate student to make an important discovery that will “break the field wide open,” as she puts it.

During her time in Albania, Sarah hiked with a colleague to the remote settlement site called Shuec. “It was a perfectly intact hilltop site that had never been excavated,” says Sarah. “To be there with only another person who has the same passion as I do, completely alone in the countryside, it’s the best part of working in Albania!”

Sarah compares her finds in Albania to data gathered from settlements in the better-studied northern Greece. “I examine similarities and differences in how people build their settlements and in the kinds of artifacts they use in those settlements,” she explains. By comparing these two areas, Sarah seeks to understand how technology, such as ceramics, metallurgy and architecture, developed throughout the region.

While in Albania, Sarah spent much of her time working with local archaeologists. “Communicating in a foreign language in daily work and correspondence is a humbling process,” she says. Yet bridging the language barrier allows her to unite research separated by current geo-political borders. “The Fulbright grant enabled me to undertake true collaboration with my colleagues in Albanian archaeology by providing me with time, means, and resources to become a full-time participant in Tirana’s archaeological community.”

During their year abroad, Thomas and Sarah experienced a new culture, advanced their studies and made unforgettable memories. But beyond their personal achievements, they fulfilled the main goal of the Fulbright program: creating connections across languages and cultures to bring together scholars who might not otherwise meet.

The Fulbright Program

The Fulbright program, sponsored by the U.S. Department of State, provides grants that enable students, teachers and professionals to conduct research or teach in another country. In recent years, UC students and faculty have received Fulbright grants to study post-revolution architecture in South Africa; work with a noted fashion designer in Iceland; translate a medieval work on Hebrew history in Israel and the UK; teach English in Bulgaria; and more. Through the Fulbright program, these students and faculty forge relationships across the globe, enabling an exchange of culture and ideas that benefits all.
The excitement of taking the stage with other master classes with Bruno Thomas Heuser’s as fellow students Weil included composers from across Europe. Thanks to a Fulbright grant, Thomas followed his passion to Munich, Germany, to study at the Hochschule’s symphony orchestra. “It offered the unique opportunity to rehearse an orchestra in German and a chance to further refine the physical language of conducting gestures that unite orchestral musicians all over the world.”

Thomas also took advantage of masterclasses with Bruno Weil, where he discussed music and conducting—all auf Deutsch—with his professor and fellow students. Thomas’ time in Germany included another unique experience: He collaborated with other Fulbright students to create and perform an entirely new composition for the Fulbright Conference in Berlin. Performers for the gala event included fellow UC student and Fulbright awardee Jackie Arrington, a master’s student studying flute performance.

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Many students dream of traveling the world. Kate Hedrick receives funding to do just that. As a doctoral student in UC’s geology department, Kate Hedrick has traveled to India, China, Argentina and Tibet to study landscape evolution. “My research is a broad-focus attempt to look at how landscapes evolve in mountainous environments,” says Kate. “But it also includes an attempt to apply relatively new dating methods to some notoriously difficult-to-date landforms.”

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Research Innovation for Real-World Transformation

The research conducted by graduate students and faculty at the University of Cincinnati is as diverse as the institution’s 250-plus degree programs. Whether it’s charting landscape evolution to find potential hazards for local populations, rethinking the construction of a popular device, or developing a new way to identify potential allergens, graduate students and faculty seek to transform the world through research.

Geology student Kate Hendrick (right) takes a break from studying land formations in Tibet. Photos of Kate Hendrick courtesy of Dr. Lewis Owen

Exploring Faulty Landscapes Across the Globe

As someone who enjoys the outdoors and traveling to new places, Kate found geology to be a natural fit.

As someone who enjoys the outdoors and traveling to new places, Kate found geology to be a natural fit.
Karakoram Fault, and am hoping the ages I get [for various landforms] will shed some light on when the fault has been active in the past.”

As part of her research in China, Kate analyzes erosion rates throughout a large valley in order to determine how the area is evolving. For instance, whether the valley getting deeper or more shallow.

While studying the changing landscape may seem unconnected to current global concerns, Kate’s work plays a critical role in mitigating the dangers of geological hazards. “In terms of erosion rates for bedrock, hillslope and basin,” says Kate, “Looking at the landscape’s response to events (e.g., glacial, tectonic) allows us to consider potential hazards in a landscape that may be applicable to the present-day population.”

Kate’s study of fault lines applies directly to earthquake prediction and damage prevention. Her research interests include how faults develop, and she has studied areas where large populations live next to active faults. Her work in Argentina focused on the fault responsible for the devastating San Juan earthquake of 1944.

“We only have one earth to live on,” Kate notes, “So it would do well to understand our home.”

---

Paper E-Readers: An Ancient Craft Gets a Digital Upgrade

“One of the things that people are most concerned about for e-readers is how to duplicate the experience that we’re all used to, which is paper,” says Dr. Andrew Steckl, an electrical engineering professor in the College of Engineering and Applied Science. In response to this concern, Dr. Steckl hit upon a brilliant idea—to get the experience of paper, why not use paper? Although still in development, a paper e-reader would offer a digital display that is flexible, low-cost, has the true appearance of ink on paper and may one day revolutionize how we read and shop.

Dr. Steckl’s paper e-reader design features a paper base and a plastic top layer, with cells for pixels sandwiched between. Each pixel cell is filled with water and colored oil and...
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Paper e-readers work through the property of electrowetting—using electricity to force water to “wet” a surface.

Water is a polar molecule, which means it’s attracted to other polar molecules. When water encounters a non-polar material such as Teflon or oil, rather than wet the surface (in the case of solids) or mix with another substance (in the case of liquids), the water molecules will stick together in “beads.” Dr. Steckl uses this principle to operate each pixel of the paper e-reader.

When the electrode under a pixel is turned off, the colored oil will stick to the electrode while clear water floats on top (Fig. 1). What the reader will see from the top is a colored pixel. When the electrode is turned on, the current will attract the water, forcing the water to wet the surface and push the oil to the sides (Fig. 2). All the reader will see for the pixel is the white background.

Turning electrodes on and off will create the text, images and rudimentary animations needed for a digital display.
operates on the principle of electrowetting. (To learn more, see the sidebar on page 20.) Dr. Steckl got the idea to use this technology while serving as the committee chair for Duk Young Kim, who was writing his thesis on electrowetting-based displays.

Paper e-readers may one day replace the old-fashioned printed newspaper. “It’s not very high quality, but it’s very low cost and very practical,” says Dr. Steckl. Paper e-readers would contain a receiver, which would download updates and new issues as they are published. But unlike an iPad or Kindle, paper e-readers could be rolled up to fit in a purse, backpack or briefcase. Also, they could be thrown away when torn or stained then cheaply replaced.

Consumers may well see paper e-readers appear first in supermarkets. An electronic price tag would allow stores to change prices in an instant, display product pictures and cross advertise by showing related goods.

However, don’t expect to see paper e-readers on newsstands or supermarket shelves anytime soon. It may take Dr. Steckl five to ten years to perfect the technology then commercialize paper e-readers.

Allergic to Animal Testing

Have you ever broken out in hives because of something you touched? Dr. Jerry Kasting and his pharmaceutical sciences team are working on a computer model to help identify skin allergens in cosmetic products and the work environment. While the traditional method for identifying skin allergens involves animal testing, Dr. Kasting’s model—in conjunction with other models—offers a method that is faster, cheaper and animal-friendly.

“This project is an attractive area for companies like P&G to advertise their efforts to reduce animal testing,” says Dr. Kasting. An animal alternative projects currently funded by Colipa, the European cosmetic, toiletry and perfumery trade association (which counts P&G among its members). As a package, these projects are intended to provide a set of models that completely replace animal testing for cosmetic product development.

As would be expected, creating such a complex computer model is not easy. Research assistant Matt Miller tests the in-progress computer model against published results and those gathered by Dr. Kasting’s team. “When the model does not fit the experimental data well, we scratch our heads and try to come up with an explanation and a way to implement appropriate modifications.” Adjusting the computer’s predictions to match real-world results is an on-going process.

Graduate student Terri LaCount conducts some of the experiments Matt uses to refine the model. “There are currently no quantitative limits for dermal exposure in industry,” Terri explains. As such, Terri’s experiments provide critical data. When added to Dr. Kasting’s computer program, her research will help estimate the risk of using certain allergenic compounds in tools, construction materials and consumer products.

While the Colipa computer model is expected to be ready in 2013, another version of Dr. Kasting’s computer model will soon be available from the National Institute for Occupational Safety and Health. Slated for a November 2011 launch, NIOSH’s version will be used by industrial hygienists to quantify risk associated with dermal exposures in factories and other working environments.

“This project is a good tie among government, industry and academia,” say Dr. Kasting. “There are benefits for all parties involved.”
Graduate student Terri LaCount, Dr. Jerry Kasting, and research assistant Matt Miller

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Sincerely,

Robert Zierolf, PhD
Interim Vice Provost and Dean of the Graduate School

Dear Friends and Colleagues,

I am pleased to share with you the Graduate School’s Annual Report. The goal of this report is to succinctly provide a quantitative and qualitative pulse of graduate education at the University of Cincinnati during Academic Year 2010-11.

Graduate programs at UC continue to attract a large number of applicants, and enrollment grew robustly in both traditional and distance-learning programs with total enrollment topping 9,200 graduate students. The Graduate School awarded 2,338 advanced degrees, matching the previous high in 2007-08. Of the degrees awarded, 275 were doctoral degrees; a listing of the dissertations written for these degrees is provided in this report.

UC’s Graduate School attracts outstanding graduate students to work with renowned faculty. Students acquire knowledge and skills, make discoveries, and generate scholarship and creative works that are vital for the betterment of our society. In this report, we provide a few examples of the people and work that underpins the high quality and reputation of advanced studies at the University. The articles provide the reader a sense for the breadth of the exciting, important and transformational work ongoing in our classrooms, laboratories, studios, performance halls and, most importantly, in our larger community.

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UC Graduate School Growth
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UC Graduate School Growth

<table>
<thead>
<tr>
<th>Degrees Awarded Trend</th>
<th>2006</th>
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<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<td>262</td>
<td>328</td>
<td>255</td>
<td>273</td>
<td>275</td>
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<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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<th>American Indian/Alaska Native</th>
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<th>Hispanic</th>
<th>Native Hawaiian/Pacific Islander</th>
<th>Two or more Races</th>
<th>Other/Unknown</th>
<th>International</th>
<th>White</th>
<th>Enrolled Minority Students (US Citizens)</th>
<th>TOTAL</th>
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<tbody>
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The Graduate School is proud of the diverse academic endeavors completed by its master’s and doctoral students during the 2010-2011 academic year. All University of Cincinnati master’s theses and doctoral dissertations can be found online at [http://etd.ohiolink.edu](http://etd.ohiolink.edu).

The following listing of doctoral dissertations represents the quality, vitality and diversity of graduate research and scholarship at UC.
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PhD, Spring 2011
Aytas Mekvi/Imlar in the Elmalı Basin, Turkey: A Multi-Period Settlement/Tral Site in Northern Lycia
Chair: Kathleen Lynch, PhD

Lueckel, Wolfgang
PhD, Summer 2010
Atomic Apocalypse–Nuclear Fiction in German Literature and Culture
Chair: Sara Friedrichsmeyer, PhD

Lynch, Julianne
PhD, Summer 2010
Mother, Mother (a novel)
Chair: Michael Griffith, MFA

Magee, Kevin S.
PhD, Winter 2011
Segmentation, Object-Oriented Applications for Remote Sensing Land Cover and Land Use Classification
Chair: Hongxing Liu, PhD

Mahajan, Sujit S.
PhD, Spring 2011
Glycans for rich and Shiga toxins: Synthesis and biophysical characterization
Chair: Suri Iyer, PhD

Maksimovic, Srdjan
PhD, Autumn 2010
Unusual eye design: the compound-lens eyes of Stegopipista and the scanning eyes of Sunburst Diving Beetle larvae
Chair: Elke Buschbeck, PhD

Maxwell, Kristi
PhD, Summer 2010
PLANVR (poem) and “From No Body to Some Bodies: A Reading of Footnotes and Endnotes as Form in Jennifer Martens’ on’s Xq28 and Jenny Boully’s The Body and (One Love Affair)”
Chair: Donald Bogen, PhD

McNally, Kelly A.
PhD, Summer 2010
Iowa Gambling Task Performance in Overweight Children and Adolescents At-Risk for Obstructive Sleep Apnea
Chair: Paula Shear, PhD

Minich, Lisa
PhD, Autumn 2010
Quality of Diabetes Care: Linking Processes to Outcomes
Chair: Steven Howe, PhD

Moskalik, Brian
PhD, Summer 2010
Condition dependence and sexual selection in a wolf spider
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PhD, Spring 2011
Urban Change in Late Antique Hispania: The Case of Emerita Augusta
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Dark And Bloody Ground: Southern Literature After the Bomb
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Chair: Enrique Guardano, PhD

Rutledge, Jenai M.
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Behavioral research on wolf spiders (Araneae, Lycosidae): Assessing common assumptions and methods
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Sanders, Alexis Y.
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The Role of Early Maltreatment, Out-of-Home Placement, and Perceived Parental Support on Adult Outcomes
Chair: Ann Kathleen Hoard Burlew, PhD

Sankaranarayanan, Jagadis
PhD, Spring 2011
Mechanistic considerations in the photochemistry of Flexible Systems
Chair: Anna Gundermosdottir, PhD

Shereen, Ahmed D.
PhD, Winter 2011
Diffusion Tensor Magnetic Resonance Imaging Applications to Neurological Disease
Chair: Scott Howard, PhD

Short, Kristen
PhD, Autumn 2010
Population genetic structure and species displacement during range expansion of invasive geckos
Chair: Kenneth Petren, PhD

Stewart, Shannan M.
PhD, Summer 2010
Gardens After the Knorr: Hellenistic Pottery and Culture
Chair: Kathleen Lynch, PhD

Sun, Yan
PhD, Spring 2011
Regularization for High-dimensional Time Series Models
Chair: James Deddens, PhD

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Solid-state Structures and Electronic Properties of Platinum (II) Tetrapyridyl Complexes: Implications for Vapor and Aqueous Anion Sensing
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Cryptanalysis of Rational Multivariate Public Key Cryptosystems
Chair: Jintai Ding, PhD

Wilson, Robert
PhD, Spring 2011
Spectroelectrochemical Sensing and Detection of Zinc in Serum by Anodic Stripping Voltammetry on a Bismuth Film Electrode
Chair: William Heineman, PhD

**COLLEGE OF BUSINESS**

Dong, Zhiyuan
PhD, Summer 2010
Three Essays in Quantitative Analysis
Chair: Martin Levy, PhD

Han, Xiaopu
PhD, Spring 2011
Omission Neglect and the Bias Blind Spot: Effects of Self-Other Asymmetry in Susceptibility to Bias and Responsiveness to Debiasing
Chair: Frank Kardes, PhD

Ingram, Amy E.
PhD, Spring 2011
Innovation and the Family Firm: Leadership, Mindsets, Practices and Tensions
Chair: Marianne Lewis, PhD

Karsten, Claudia R.
PhD, Winter 2011
Technology Enabled New Inventory Control Policies in Manufacturing
Chair: Thomas Barcelé, MM

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Brooks, Colleen
DMA, Summer 2010
Cabaret Songs by Classical Composers During the First Half of the 20th Century: Satie, Schoenberg, Weill, and Britten
Chair: Jeongwon Joe, PhD

Brown, Myron D.
DMA, Spring 2011
The 17th Century Tanztanella für Pianoforte: A Pedagogical Guide to Performance and Leveling
Chair: Michelle Conda, PhD

Bunte, James
DMA, Summer 2010
A Player’s Guide to the Music of Ryo Noda
Chair: Rick Vanmatre, MM

Chase, Jared G.
DMA, Winter 2011
Le bal de Béatrice d’Est by Reynaldo Hahn: A Critical Edition
Chair: Rodney Winther, MM

Chiang, I-Chun
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A Historical Technique from a Modern Perspective
Chair: Catharine Carroll, DMA

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The Interaction Between Poetic and Musical Causality in Six Settings of Elizabeth Barrett Browning’s Sonnet XLI
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Clavere, Javier
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Chair: Jonathan Kregor, PhD

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Poetic Structural Devices as a Consideration When Analyzing and Interpreting Choral Scores
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A Critical Narrative Interpretation of John Corigliano’s Etude Fantasy
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ment of Luciano Berio’s Sinfonia
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"To Be an American" How Irving Berlin Assimilated Jewishness and Blackness in his Early Songs  
Chair: Steven Cahn, PhD

Hayes, Jonathan Adam  
DMA, Summer 2010  
Approaching Elementary Music Theory Through Practical Application: A Supplemental Method for the Developing Trumpeter  
Chair: Alan Siebert, MM

Hogan, Charles  
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Jones, Jeremy D.  
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The Development of Collegiate Male Glee Clubs in America: An Historical Overview  
Chair: Earl Rivers, DMA

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DMA, Summer 2010  
Late Twentieth-Century Piano Concert Etudes: A Style Study  
Chair: Bruce McIlrung, PhD

Keates, Peter C.  
DMA, Spring 2011  
John Harbison's Songs for Baritone: A Performer's Guide  
Chair: Barbara Paver, MM

Lane, John  
DMA, Summer 2010  
Chair: Allen Otte, MM

Macera, Nebojsa S.  
DMA, Spring 2011  
The Piano Concerto for Piano and Wind Ensemble  
Chair: Joel Hoffman, DMA

Ozaki-Graves, Margaret T.  
DMA, Spring 2011  
Chair: Jeongwon Joe, PhD

Miller, Kimberly E  
DMA, Summer 2010  
Carl Baermann: His Influence on the Clarinet in the Nineteenth Century as Pedagogue, Composer, and Instrument Technician  
Chair: Jonathan Kregor, PhD

Park, Moon-Sook  
DMA, Summer 2010  
Doubt and Belief  
Chair: Kenneth Griffiths, MM

Rodriguez Bermejo, Sonia Maria  
DMA, Summer 2010  
Discovering Isaac Albeniz as a song composer  
Chair: Kenneth Griffiths, MM

Abuali, Mohamed  
PhD, Summer 2010  
Techniques for Non-Intrusive Machine Energy and Health Modeling  
Chair: Jay Lee, PhD

Aly Hassan, Ashraf  
PhD, Summer 2010  
A Novel Integrated Scheme for the Detection of Hydrophobic Hazardous Air Pollutants  
Chair: George Soual, PhD

Arndt, Angela E.  
PhD, Spring 2011  
Teaching Scholarship in Community Media: Identifying Multiple Literacy Learning Through Digital Arts Production  
Chair: Lanathan Camblin, PhD

Berry, Laura  
PhD, Autumn 2010  
A Comparison of the Effects of Repeated Readings with and without Summer Model Listening Preview on Reading Fluency and Comprehension for English Language Learners  
Chair: Renee Oliver Hawkins, PhD

Bolar, Eleanor A.  
PhD, Spring 2011  
Innocent American Clergy: Fostering Supportive Relationships with Survivors of Childhood Sexual Abuse  
Chair: Miranda Radner-Roth, EdD

Carter, James W.  
PhD, Winter 2011  
Local Law Enforcement in the Realm of Cyberspace: The Role of Local Law Enforcement Agencies in Controlling Internet Crime  
Chair: Lawrence Travis, PhD
Chair: Todd Haydon, PhD

**Theory Framework of Intelligence-Led Policing and Crime Prevention**

Chair: Robin Engel, PhD

**Assessing the Effectiveness of the Cincinnati Police Department’s Automatic License Plate Reader System within the Department’s Police Intelligence Unit**

Chair: Frederick Robert Wilson, PhD

**Partner Response to Pain Behaviors and Relationship Satisfaction**

Chair: Mitchell Chamlin, PhD

**Investigation of the Crime-Arrest Relationship**

Chair: Amy Bernard, PhD

**Predictors of Behavior-Related Obesity: Using the Theory of Planned Behavior in Seventh and Eighth Grade Students**

Chair: John Eck, PhD


Chair: John Eck, PhD

**Teachers’ Responses to Using a Small-Group Delivery Method during Reading Instruction: A Qualitative Approach**

Chair: Lanthan Camblin, PhD

**Adolescent Deviance within Families and Neighborhoods**

Chair: Michael Benson, PhD

**An Investigation of Two Class-Wide Interventions for Student Desk Organization**

Chair: Renee Oliver Hawkins, PhD

**The Effect of a Multimedia Learning Environment on the Knowledge, Attitude, Confidence, and Skill of Dental Hygiene Students**

Chair: Janet Zydynek, Ph.D.

**The Effect of Vicarious Exposure on Women’s Health: Does the Victim-Offender Relationship Matter?**

Chair: Bonnie Sue Fisher, PhD

**Does the Victim-Offender Relationship Matter? The Effect of Victimization on Women’s Health:**

Chair: Daria Narmoneva, PhD

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**Randomized Intervention for Students’ Self-Efficacy**

Chair: Ronnie Sue Fisher, PhD

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Chair: Janet Zydynek, Ph.D.
Li, Zhixia  
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Dynamic Dilemma Zone Modeling and Its Protection  
Chair: Heng Wei, PhD

Lu, Ting  
PhD, Summer 2010  
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Chair: Daniel Oerther, PhD

Madhi, Elhoccine  
PhD, Autumn 2010  
In-Situ Creep Monitoring Using Directional Potential Drop Sensors  
Chair: Peter Nae, PhD

Marfil Vega, Ruth  
PhD, Autumn 2010  
Abiotic Transformation of Estrogens in Wastewater  
Chair: Makram Suidan, PhD

Mo, Dengyao  
PhD, Winter 2011  
Robust and Efficient Feature Selection for High-Dimensional Datasets  
Chair: Hongdao Huang, PhD

Munday, David  
PhD, Autumn 2010  
Flow and Acoustics of Jets from Practical Nozzles for High-Performance Military Aircraft  
Chair: Ephraim Gutmark, PhD, DSc

Abdel Motleib, Moustafa  
PhD, Summer 2010  
Risk Based Decision Making Tools for Sewer Infrastructure Management  
Chair: Ossama Salem, PhD

Palsule, Aniruddha  
PhD, Summer 2010  
Silicone and Fluorosilicone-Based Materials for Biomedical Applications  
Chair: Stephen Clarson, PhD

Peng, Tao  
PhD, Summer 2010  
Coupled Multi-body Dynamic and Vibration Analysis of Hypoid and Bevel Geared Rotor System  
Chair: Teik Lim, PhD

Ramawami, Hemant  
PhD, Summer 2010  
An integrated framework for virtual machining and inspection of turned parts  
Chair: Sundararaman Anand, PhD

Ramirez, Jose A.  
PhD, Summer 2010  
Optimal and Simulation-Based Approximate Dynamic Programming Approaches for the Control of Re-Entrant Line Manufacturing Models  
Chair: Emmanuel Fernandez, PhD

Rudd, Brent  
PhD, Winter 2011  
Active Tonal and Broadband Noise Control for Magnetic Resonance Imaging Systems  
Chair: Teik Lim, PhD

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