

# CASCADE

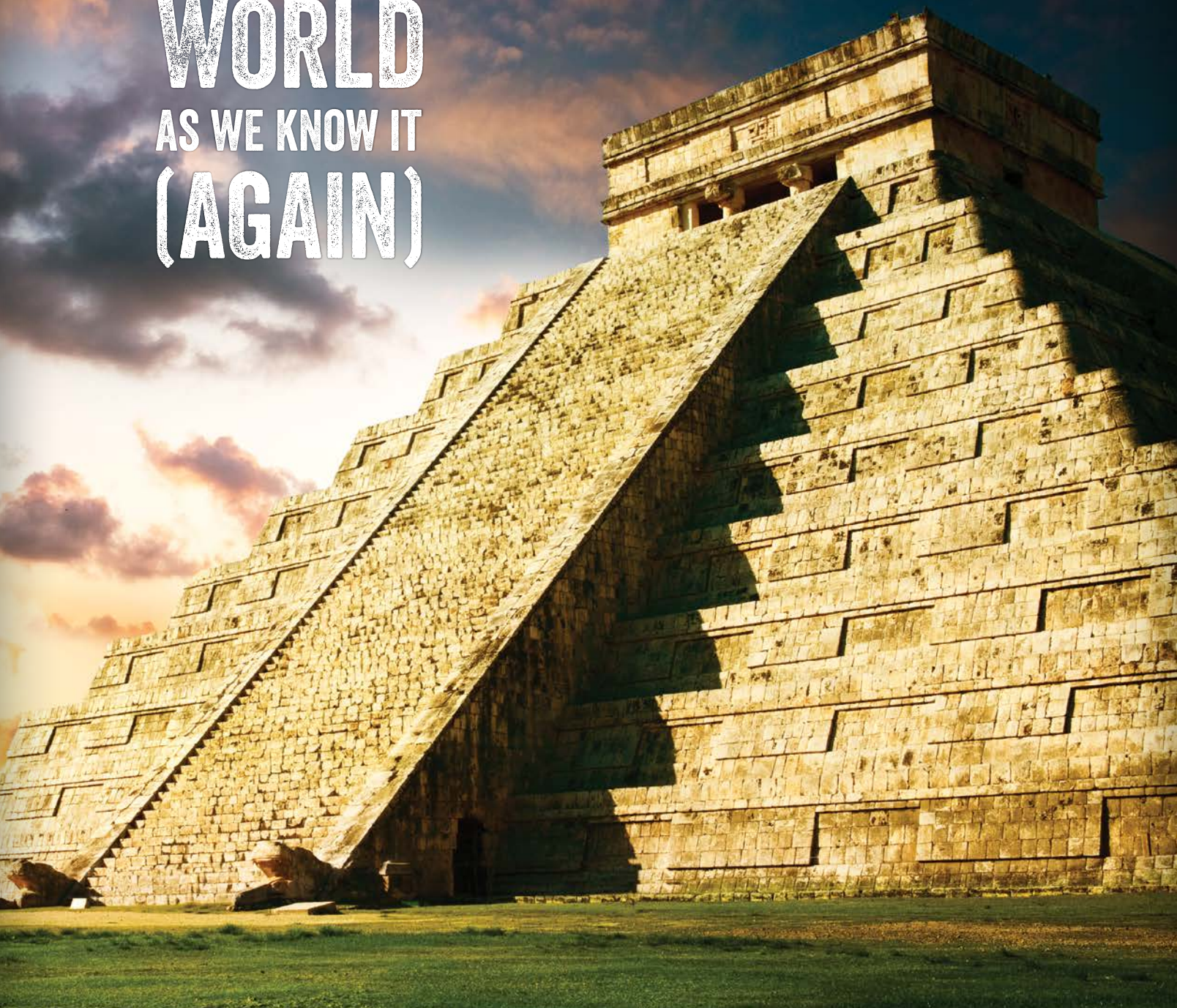
UO COLLEGE OF ARTS AND SCIENCES



UNIVERSITY  
OF OREGON

FALL 2012

## THE END OF THE WORLD AS WE KNOW IT (AGAIN)



PAPER OR PLASTIC? BE INFORMED • MAPPING THEIR FUTURE • GAME CHANGERS

# Dean's Page

It's especially crucial that we get the leadership mix right, as this fall the UO has exceeded an enrollment of 25,000 students for the first time.



Scott Coltrane, Tykeson Dean of Arts and Sciences

JACK LIU

Great institutions embrace social and economic changes by seizing strategic opportunities to build excellence. We are in the midst of such change at the University of Oregon, with major shifts occurring in leadership.

It's especially crucial that we get the leadership mix right, as this fall the UO has exceeded an enrollment of 25,000 students for the first time—at the same time we are poised to transition to an independent governance model, a prospect that is becoming more of a reality than ever.

During the past year we lost a visionary and outspoken president, Richard Lariviere; had the good fortune to have the best academic leader in the country as an interim president for seven months, Bob Berdahl; and now boast one of the finest administrators in all of higher education as our seventeenth president, Michael Gottfredson.

Gottfredson is a noted scholar of criminology and served for more than a decade as executive vice chancellor and provost at the University of California at Irvine where he led efforts to significantly grow enrollment, add new faculty members and create new schools and academic programs. During his tenure, UCI was invited to join the Association of American Universities (AAU), the elite organization comprised of top research universities that includes the UO.

According to his former colleagues, Gottfredson has the ability to build consensus around common goals, even under stressful circumstances. In the face of deep budget cuts and hiring freezes he was able to increase UCI's revenue sources and build strategic alliances while maintaining high-quality programs. Strategic planning and budgeting allowed UCI to take advantage of a tight job market and entice some of the best faculty members and researchers in the world

to the campus. In addition, Gottfredson oversaw the construction of forty-plus UCI facilities, valued at more than \$1.8 billion.

Within the College of Arts and Sciences we are also undergoing significant leadership change that bodes well for the future, welcoming three new members to our executive team in the past few months. Ian McNeely, associate professor of history and former chair of the UO Undergraduate Council, takes on the role of associate dean for undergraduate education; his focus will include enrollment and student advising, new educational programs and related academic issues.

Gordon Taylor, former CFO for the dean of Dartmouth College, joins us as the new associate dean of finance and administration. Gordon brings considerable experience in finance and investment banking in addition to his higher education experience. Our new administrative director is Miriam Bolton, former executive assistant to the UO provost and to the dean of the business college. In addition to having served this past year on the presidential search committee that successfully recruited Mike Gottfredson and currently serving as elected chair of the UO Officers of Administration Council, Miriam is a former deputy sheriff, enabling her to literally "watch our backs."

Together these three individuals bring considerable skill and vision, a wealth of knowledge about best practices and great enthusiasm for the core mission of the college. The team is in place and we are poised to take advantage of opportunities that any new changes will bring.

A handwritten signature in blue ink that reads "Scott Coltrane".

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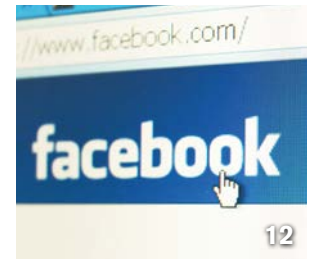
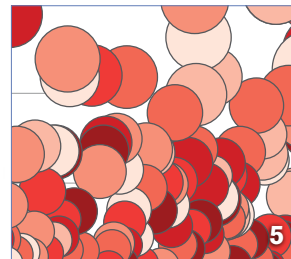
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# Ask the Expert

## Paper or Plastic? The Answer Might Surprise You



MICHAEL MCDERMOTT

Chemistry professor David Tyler (above) has taken an interest in the environmentally sensitive decisions that confront consumers every day: Plastic grocery bags . . . or paper? Take the car to work . . . or public transit? Disposable cups . . . or a ceramic mug that can be used over and over again?

Tyler has surveyed some of the research on these alternatives and has concluded that the environmental impact of some of our “green” choices can be surprising when you consider their effects from cradle to grave—that is, the total impact from the point a product is created from raw materials, through its manufacturing, distribution and consumer use, ending with its disposal or recycling.

These “life-cycle assessments” broaden the conventional definition of environmental impact by taking into account all energy and material inputs and then the related consequences, which could include downsides such as climate change, smog, water pollution, land use, depletion of fossil fuels and more.

There are life-cycle assessments for everything from owning a dog to buying locally grown tomatoes. Tyler’s conclusion? Consider all the options and make an informed decision—some of the things thought to be hard on the environment might not be so bad after all, depending on what’s most important to you.

Interview by Matt Cooper

**Q: In looking at the research that’s out there, what have you found regarding plastic shopping bags versus paper or cotton bags?**

**A:** There are really good things about plastic bags—they produce less greenhouse gas, they use less water and they use far fewer chemicals compared to paper or cotton. The carbon footprint—that is, the amount of greenhouse gas that is produced during the life cycle of a plastic bag—is less than that of a paper bag or a cotton tote bag. If the most important environmental impact you wanted to alleviate was global warming, then you would go with plastic.

**Q: Why is the carbon footprint for a plastic bag less than that of a paper bag or cotton?**

**A:** Cotton is typically grown on semiarid land so it consumes a huge amount of water and you also need a lot of pesticides. About 25 percent of the pesticides used in this country are used on cotton. Paper is just typically considered a fairly polluting industry. Whereas the petroleum industry, where we get our plastics, doesn’t waste anything. Chemists have had sixty to seventy years to make the production of plastics fairly efficient and so typically there is not a lot of waste in the petroleum industry.

**Q: When you point this out at your public talks, what kind of reaction do you get?**

**A:** A lot of people say they don’t believe it. It just feels good to think that cotton is better for the environment than plastic.



**Q: How about disposable cups versus ceramic mugs? The thinking is a ceramic mug is better for the environment because it’s reusable.**

**A:** But when you manufacture the mug it has to be fired in a kiln at a very high temperature. That takes a lot of energy. If the manufacturing takes a lot of energy to make something, you have to recover that energy through repeated reuse, but typically with a mug, studies show that you don’t use them enough to break even on the original energy input. You might as well take that petroleum or natural gas that you are using to warm the kiln and make one-use disposable cups.



**Q: There is a fun one that you came across regarding owning a dog versus owning an SUV.**

**A:** One life-cycle assessment showed that the average environmental impact of a dog was greater than the environmental impact of a typical SUV—although it should be noted that this was a pretty controversial study. It suggested that the resources needed to produce food over a dog’s life span—especially meat—outweigh those used to make and drive an SUV. What we have discovered is things that involve agriculture often have a high negative



environmental impact—and you have to grow food for a dog. The finding wasn't exclusive to dogs; it applies to other pets, too.

But here's another way to look at it—pets, to a lot of people, are essential. They provide companionship. Life-cycle assessments cannot take that into account—the goodwill that comes from owning a pet.

**Q:** Clearly, though, an SUV could also be your companion.

**A:** Absolutely (laughing).

**Q:** You've raised a point that is important for all of these decisions—it depends on what's most important to you. What are some different values that people might be weighing?

**A:** There are thirteen or fourteen standard environmental impacts that life-cycle assessments consider. Those impacts include global warming, carbon footprint, human toxicity, algae growth in lakes and other bodies of water, resource consumption, ozone depletion and smog production.

But how those impacts are weighed depends on context. So, for example, if we lived in Los Angeles, anything that created smog would be really high on our list. But in Eugene that's not so much of an issue. In Eugene, it's a little easier to say, let's worry about global warming rather than smog. If you live in a community that doesn't have much landfill space or you were worried about plastic bags washing into the ocean, then you would want to find alternatives to plastic because it has a longer life span than other materials.

**Q:** You have an interesting observation about Styrofoam.

**A:** Styrofoam is a plastic. And the life-cycle assessments show that plastic cups are no worse on the environment than a paper cup.



**Q:** But people say, “Oh, Styrofoam, it's going to be in the earth for the rest of our days.”

**A:** Once again, the carbon footprint is smaller for Styrofoam than for paper cups. There is less energy needed to produce it. People have been told their whole lives about the evils of Styrofoam—and then somebody comes along and says, well, the environmental impacts in a lot of categories for Styrofoam are much better than the alternatives. On the other hand, it takes Styrofoam longer to degrade so this reinforces the point that our consumer choices hinge largely on what's most important to us. If your main concern is pollution or garbage reduction, you might not choose the Styrofoam cup even though its carbon footprint is lower.



**Q:** Let's talk about plastic forks and bioplastic forks. I would guess that a bioplastic fork, which breaks down, is the way to go for environmental stewardship.

**A:** Bioplastic is considered really good because it degrades—it's compostable. What they don't tell you is, it's compostable in an industrial composter, which means it's got to be 130 degrees, and it's got to be turned daily. But very few communities have industrial composting capabilities. You can't take that bioplastic fork and put it in your backyard grass pile and have it compost. It won't do that.

Also, because you have to grow the starch that bioplastics are made out of, the carbon footprint is worse than for a polystyrene fork. The other problem is that currently bioplastics are made from starch that comes from corn or potatoes and sometimes even rice, and a lot of people have a real problem with using food for plastics. A huge amount of the U.S. corn crop is diverted to fuel and is now starting to be diverted to bioplastics.

**Q:** What have you learned about the Bay Area Rapid Transit System versus cars?

**A:** I always point out that there are many reasons for urging people to take public transportation—relieving congestion is a big one. But if you try to justify that choice based on sustainability, that's not necessarily a valid conclusion. Researchers did a life-cycle assessment of the BART system in San Francisco versus packing people into cars and having them commute. It takes a lot of energy to make a light rail system and a lot of energy goes into the use of the BART system, and these researchers found that it was basically pretty even in terms of energy use. So there are all kinds of compelling reasons to use public transportation, but from a sustainability point it's probably a wash.

**Q:** Help me understand the difference between buying a tomato at the Saturday Market and buying one that came on a truck from California.

**A:** Here again, there are all kinds of compelling reasons to eat local food. But the conclusion from life-cycle assessment studies is that sustainability is not necessarily one of those reasons. They'll ship five tons of tomatoes in a truck from California and the cost per mile per tomato is small in terms of fuel used compared to some guy who gets into his old beater truck and drives into the farmers' market with five pounds of tomatoes he wants to sell that day.

CONTINUED ON NEXT PAGE



**Q:** When I go out to Office Max should I buy a pack of brand-new paper or recycled paper?

**A:** You would assume that recycled paper is the way to go for the environment. And in the United States that seems to be true. But a life-cycle assessment study in England suggested historically it was probably better to incinerate paper and use that energy than it was to recycle the paper. It's the inefficiency of the recycling plant and the associated recycling process that wasted more energy—in England, apparently it was very energy inefficient. In this country it's probably okay.

That was a classic study that shows we are making some assumptions about recycling that maybe we shouldn't be making.



**Q:** LED lights are touted as the future of lighting. Is that unquestionably a slam dunk that it is good for the environment and good for us?

**A:** Well, no. The issue with LEDs is that when they do burn out we have to recycle them appropriately. Several studies suggest they contain toxic metals, so we will have to gear up to recycle those systems properly. You save energy as you transition from incandescent bulbs to compact fluorescent light bulbs to LEDs. But at the same time you may be increasing the human toxicity impact—mercury in the case of CFLs and heavy metals in the case of the LEDs.

**Q:** One more. Let's say a mother-to-be is choosing between cloth and plastic diapers.

**A:** They used to refer to this as “the diaper wars.” It depends on the efficiency of the manufacturing plant. If you have a nice modern diaper manufacturing plant that's making plastic diapers, then go for it. If it is an old inefficient plant, then probably cloth diapers are better. But the cloth is

made out of cotton, and then it comes back to all the problems with cotton—where is it grown, how much pesticide is used; the water use is tremendous. And remember, with the cloth diaper you have to wash it—so you're using water, you're using energy to heat the water to wash the cloth diaper and so on. It just occurred to me—it's a “wash.”

And actually the environmental impact of your new baby is so huge compared to the environmental impact of using a cloth or a cotton diaper you're worrying about the wrong thing. You probably should have considered having one less kid (laughing). That's a joke, of course.

**Q:** What recommendations would you make to someone if they really want to make consumer decisions that work for them?

**A:** Be informed. Life-cycle assessment data can be retrieved on the web. It's just like when you buy a car; you go online or to the library and you read about it. You also have to decide who you think is a credible source. Depending on the source, you'll say, “I don't really believe this person” or “I do believe him or her, the research seems solid.” Doing the research is really the best way to make an informed choice. ■

## Tyler's Top Ten Environmental Surprises

Life-cycle assessments of our popular “green” consumer choices suggest we may be wise to consider alternatives as well. In some of these assessments, researchers have concluded:

- Plastic bags produce FEWER greenhouse gases than paper or cotton bags.
- Ceramic mugs consume MORE ENERGY than disposable cups.
- The environmental impact of owning a dog CAN BE GREATER than owning an SUV.
- Styrofoam cups produce FEWER greenhouse gases than paper cups.
- Bioplastic forks CAN BE HARDER on the environment than plastic ones.
- The BART system in the San Francisco area USES ABOUT AS MUCH ENERGY as commuters in cars.
- Delivering a large truckload of tomatoes from California to Eugene can be EASIER ON THE ENVIRONMENT than delivering an equivalent amount in small truckloads from local farms.
- Recycled paper CAN CONSUME MORE ENERGY than new paper (at least in England).
- LED lights save energy but increase TOXICITY concerns.
- Plastic diapers can be A GREENER CHOICE than cloth diapers.



# MAPPING THEIR FUTURE

Data visualization—the art of displaying data in ways that reveal new and meaningful patterns—is the special province of the UO’s renowned InfoGraphics Lab. Two former students (now master’s degree recipients) have gained national recognition for their groundbreaking work.

By Patricia Hickson

Last January, Kory Northrop won the grand prize in a nationwide data visualization competition sponsored by the U.S. Department of Transportation. His project, “Bicycling Commuting Trends in the United States,” involved a series of interactive graphics relating the popularity of bicycle commuting to factors such as bicycle fatalities and government spending on bike-friendly initiatives.

Derek Watkins has enjoyed a different kind of recognition: some of his cartographic creations posted on his blog, Creative Mappings, have gone viral. Last May, technology blogs, including *The Guardian* and *Gizmodo*, featured a map he created depicting world population density, and this in turn led to *Vanity Fair* extolling the map’s virtues in an online article. Other maps by Watkins have garnered attention from other high-profile media outlets.

“Kory and Derek are pushing boundaries,” said Jim Meacham, director of the UO’s InfoGraphics Lab and a mentor to both. “They excel in taking data sets and thinking of innovative ways to display that data, to show patterns people haven’t seen before.”

## Visualizing Where Seven Billion People Live

It’s hard to visualize where seven billion people on the planet live. But Watkins’s map of population density gives us a pretty good idea.

Watkins, who received his master’s in geography last spring, said he made the map “to get people thinking.”

“Maps aren’t objective,” he said. “They can change the world with the stories they tell.”

His population density project began last spring. Inspired by *The Continents*

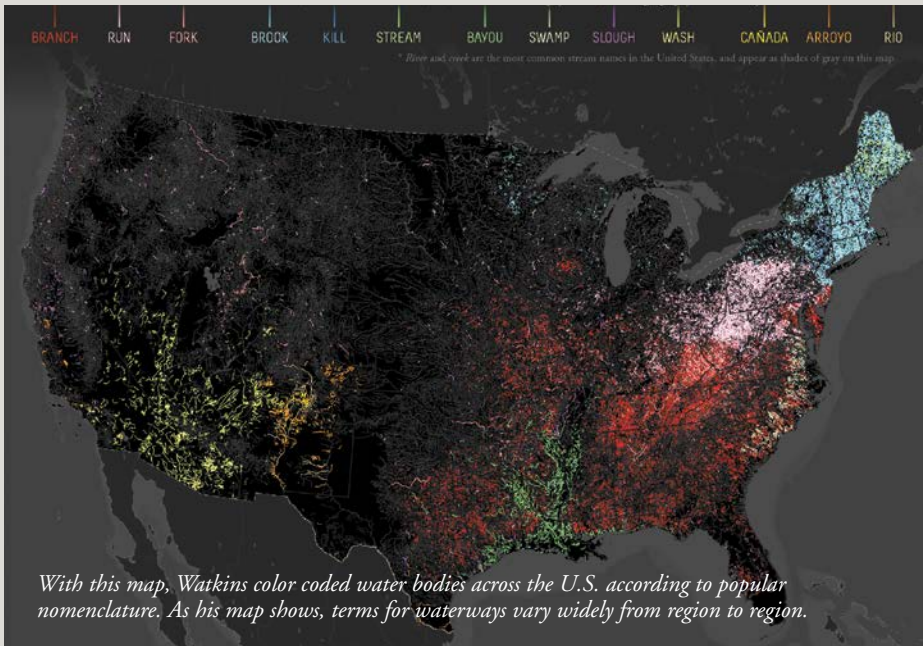
and *Islands of Mankind*, a map by spatial theorist and geographer William Bunge, Watkins created a black on white image of the world where only those places with population densities of at least five people per square kilometer are shown. (Pretty much the entire eastern half of the U.S. and all of the West Coast qualify.)

At this low density, most of the landmasses of the world show up and the resulting graphic is an easily recognizable illustration of the continents (see image above)—all of them, save Antarctica, are neatly outlined or filled in black, showing the swaths of terra firma where the world’s population resides.

Watkins then takes this visualization to the next level with interactivity. A slider bar allows viewers to toggle population densities from five people per square kilometer to 500 (try it for yourself; see Online Extras). As the densities increase,

# “Maps aren’t objective. They can change the world with the stories they tell.”

\* DEREK WATKINS \*



the black landmasses on the map begin to disappear, so that only the locations with the higher densities remain.

At twenty people per square kilometer most of the Americas are erased, along with Australia, a huge swath of North Africa and nearly all of Russia. By 200 people per square kilometer, most of the world has gone white. Finally, at a density of 500 people per square kilometer, black remains only at the edges of China and India.

Watkins’s population density map, which he published in April 2012, made an online news splash. But even before its release, Watkins’s work had attracted attention. His first post to his blog site—a map depicting the distribution of generic names for rivers and streams in the continental U.S.—garnered media attention from Fast Company Design.

That map, a beautifully illustrated depiction of America’s waterways (above), provides an unusual perspective on the water topography of our nation. Using data from the U.S. Geological Survey National Hydrography Dataset, Watkins color-coded water bodies across the U.S. according to popular nomenclature. As his map shows, terms for waterways vary widely from region to region. The northeast is dominated by blue-colored “brooks,” the

southwest peppered with orange “arroyos” and yellow “cañadas” and the Gulf Coast region rich with lime green “bayous.”

The result is a graphic that tells a story about the U.S. from a cultural and etymological perspective. “Our names for our water bodies reflect our cultural heritage, migration patterns and language use,” Watkins said. You won’t find a “wash” in South Carolina or a “swamp” in California, for instance.

One of Watkins’s interests is in building connections between parts of geography that have traditionally been divided. Cartography, as a subdiscipline of geography, has been associated with the more “scientific” side of geography, rather than the “social” side that is closer to what sociologists and anthropologists do. But Watkins sees that traditional divide changing as tools for transforming and mapping data emerge.

“In the past, cultural geography and computer mapping were an unusual combination for a geography student,” he said, “but with the technology available today, there is no reason for there to be a divide in the discipline anymore.”

This past summer, Watkins was an intern in the graphics department of the *New York Times*. He is the third student

associated with the UO’s InfoGraphics Lab to land a job at the prestigious paper.

## Data Visualization for Better Informed Policy

From October 2011 to August 2012, Northrop, who received his master’s degree in environmental science last spring, pedaled his bike an average of 7.06 miles for 39.06 minutes per day. Not counting recreational or bicycle touring rides, his longest on-bike day that year was August 21, a Tuesday, during which he rode 37.56 miles. His shortest day: Wednesday, August 8, 1.36 miles.

All these stats—and many more—are available via an interactive online chart Northrop created by transferring to his computer the data from a cyclometer on his bike. The chart uses color-coded bubbles (right), with size indicating ride time and color corresponding to the day of the week, to chronicle his commuting adventures. Hovering over a bubble with your mouse gives you details about the date, mileage and Northrop’s time on the bicycle seat.

Another project—his award-winning data visualization, “Bicycle Commuting Trends in the U.S.”—provides an equally intriguing interface and enough enticing information to encourage viewers to click around on the maps and charts.

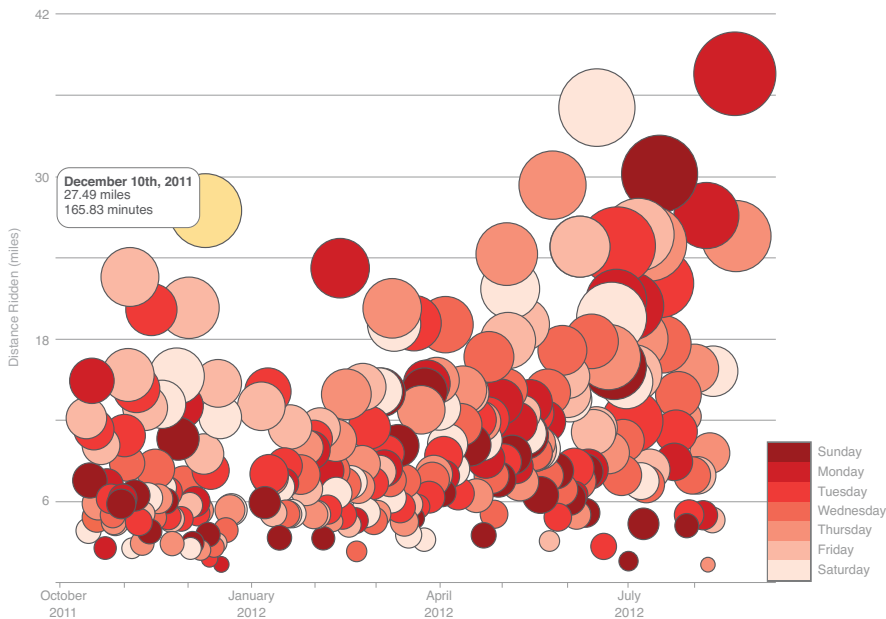
“Click around” is exactly what Northrop hopes viewers of his data will do—like the judges in the competition that bestowed the grand prize on his project. The competition encouraged students to create visuals that would support decision makers in creating better-informed policy about transportation safety. Northrop believed that offering graphics that encouraged engagement would be more effective than providing static facts and figures.

“I want people to be able to pull the information from the charts and maps themselves,” Northrop said. “There is value in not having everything spelled out. When people interact with the data, they feel a sense of ownership. They start drawing their own conclusions, and that’s

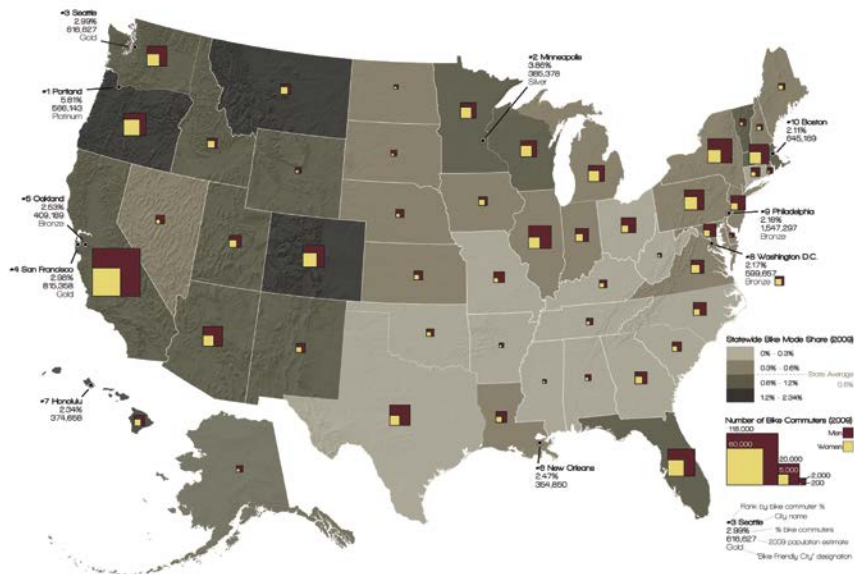


# “When people interact with the data, they feel a sense of ownership.”

\* KORY NORTHROP \*



In this chart, Northrop uses color-coded bubbles, with size indicating ride time and color corresponding to the day of the week, to chronicle his bicycle commuting adventures. The online version of the chart (see Online Extras) is interactive—hover over a bubble to get more information about that day’s commute.



This map, “Bicycling Commuting Trends,” shows the proportion of bike commuters in each state, as indicated by the size of the squares. The states are also color-coded to show the percentage of bike commuters overall. Oregon is among the very highest, percentage-wise.

a lot more powerful than bullet points you hear and forget.”

And what conclusions might be drawn? Within a couple minutes of interacting with “Bicycle Commuting Trends” (below left), viewers will notice that women make up a much smaller percentage of total commuters than men, ranging from 35 percent in Portland, Oregon, to 4 percent in Riverside, California. And then there’s the percent of commuters who go by bike overall: Of the seventy-two American cities with at least 250,000 residents, the city with the greatest percentage of commuters traveling by bike is, true to reputation, Portland. But even in Portland, cyclists account for a mere 5.9 percent of the total commuting population. Cycling stats bottom out in Memphis, Tennessee, where a measly 0.06 percent of all commuters bike to work.

The discrepancies may be partially explained by another chart showing federal investment in bicycle and pedestrian infrastructure for the last twenty years. Only \$2.96 per capita was spent in 2011. The most spent in an individual year over the twenty-year period was \$4.00 per capita; the least, five cents. Regarding the commuting disparity among states, Northrop’s map of bicycle fatalities per state tells another suggestive story. Do those states with high cyclist fatality rates have low overall bicycle commuting rates? The short answer: yes.

Northrop is ultimately driven by a long-term vision for his work. “I want to help retrofit the transportation systems in American cities,” he said. “Transportation infrastructure doesn’t have to be a concrete maze we move through in our private cars. It can be a system that fosters social interaction and gets people outside.”

Northrop is currently an intern at the City of Eugene Transportation Planning Department. Later this fall, he will start an internship that will involve mapping cycling bottlenecks in the Dutch province of Noord-Brabant, working with Goudappel Coffeng, a firm specializing in multimodal transportation planning. ■

Online Extras (see page 28) will take you to Watkins’s and Northrop’s blogs.



# THE END OF THE WORLD AS WE KNOW IT (AGAIN)



UO folklorist Daniel Wojcik studies beliefs about endings. He will be traveling to the Yucatán to be at the epicenter of the “apocalypse tourism” phenomenon expected for the predicted end of the Mayan calendar (and end of time) on December 21, 2012.

By Patricia Hickson

In case you haven't heard, the world is ending—again. The precise end date is December 21, 2012, the upcoming winter solstice. By some interpretations, this is the last day of a 5,125-year cycle in the Mayan calendar. In other words, when the calendar ends, so does the world.

It's also the birthday of Daniel Wojcik, an associate professor of English and director of the folklore program, who just happens to be an eschatologist—a person who studies “the last things” and beliefs about the end times.

According to Wojcik, there are thousands

of web pages and a mountain of books offering support, survival advice and spiritual guidance to help you prepare for the coming apocalypse and whatever comes after. But he would tell you not to worry too much. From his perspective, the 2012 end date is just the latest of hundreds, if not thousands, of predictions about The End.

For much of the last three decades, Wojcik has been researching end-of-the-world beliefs. His book on the subject, *The End of the World as We Know It: Faith, Fatalism and Apocalypse in America* (1997), has made him a sought-out source for the press. Last year he was a go-to expert for a series of articles published by the CNBC News Network in conjunction with their documentary, *Apocalypse 2012*.

While apocalyptic beliefs are usually portrayed as fringe—e.g. the Heaven's Gate and Jonestown cults that led to mass suicides—Wojcik says the idea of a worldly cataclysm followed by regeneration of the earth is actually a mainstream narrative in many societies.

“It is an enduring, pervasive and extremely significant phenomenon that has existed historically and cross-culturally,” he said.

While he takes the subject very seriously, Wojcik also clearly appreciates the pop-culture artifacts of apocalyptic belief. The walls of his office feature a large chalk drawing of a mushroom cloud, images of a zombie apocalypse, flying saucer folk art and doomsday film posters, including one titled “Apocalypse Culture Cinema” from a film festival he organized at the UO in 2008.

## END-TIMES MYTHOLOGIES, SACRED NARRATIVES

To underscore the pervasiveness of doomsday beliefs, Wojcik points to the end-times mythologies and sacred narratives of the world's major religions (see sidebar, p. 11). Add to this the eclectic mix of modern apocalyptic visions, reflected in beliefs about environmental destruction, looming pandemics, extraterrestrial invasions and nuclear Armageddon.

Despite the recurring “last day” predictions over the centuries, Wojcik is anything but dismissive of 2012 concerns. His perspective is respectful. Studying end-of-the-world prophecies, he says, reveals issues of ultimate concern, the deepest fears and biggest questions of human consciousness: What happens at the end? What is the meaning of human existence? Why is there suffering in the world and how will it be resolved? What is the fate of humanity?

“I’m not into mocking these beliefs,” he said. “I’m interested in the meaning and cultural influence of these ideas. From the perspective of the study of society, religion and human psychology, it is significant that so many believe the world is ending.”

Moreover, he is sensitive to the fact that predictions of the end often emerge around times of crisis.

“There is a relationship between apocalyptic speculation and times when people feel societal traditions are being abandoned or destroyed, or when there is an increased sense of suffering or threat in the world,” he said. “From a believer’s perspective, an apocalypse offers the promise of a better world and the end of something terrible.”

The expansion of Greek conquest in the Near East around the fourth century B.C., for instance, gave rise to Persian, Egyptian and Hebrew millennial movements. Texts from these cultures predicted the arrival of a divinely sent ruler who would defeat the Greeks, restore true religion and create a golden age.

Similarly, the Book of Revelation in the New Testament was written during the

Roman Empire’s persecution of Christians and foretells the destruction of the oppressors and the coming of a perfect world.

More recently, in the late 1800s several Native American prophets described an event that would end oppression by whites (in some versions of the vision the earth would open up and swallow the oppressors), reinstate traditional culture and reunite the living with dead relatives and ancestors who would return.

## A MILLENNIALISM MASH-UP

Present-day apocalyptic beliefs are no exception to this pattern. Dire scientific predictions related to overpopulation, climate change and environmental degradation—combined with fears about nuclear war, terrorist attacks, national and global financial meltdowns and other societal upheavals—create what Wojcik calls a “period of severe anxiety” that makes the possibility of an apocalypse seem more real.

When combined with religious beliefs, such secular predictions and circumstances can take on spiritual significance. Several modern Christian sects, for instance, associate the possibility of nuclear annihilation with biblical prophecies of a fiery cataclysm—and, more importantly, redemption.

Thanks to the Internet, today’s profusion of fears now cross-pollinate in ways never before possible. Wojcik calls it a “millennialism mash-up,” with believers across the globe exchanging, merging and reposting predictions about end-of-the-world scenarios.

Reinterpretation is a hallmark of doomsday forecasting. “End-times enthusiasts consistently reimagine and transform theories and beliefs to make them relevant to their world views,” he said. “The traditional angels of the past are transformed into benevolent beings in flying saucers, and then the flying saucers are reinterpreted as apocalyptic UFOs flown by fallen angels.”

The 9-11 attack, for instance, has been appropriated by religious groups, conspiracy theorists, militarists and others as a sign that the end is near.

Current anxiety over global conditions is reflected by recent public polls. A 2012 Reuters survey of more than 16,000 people worldwide found that about 15 percent believe the world will end during their lifetime and two-thirds of those fear that the supposed end of the Mayan calendar signifies it could happen this year. A poll conducted by the Pew Research Center in 2010 found that 41 percent of people in the U.S. believe that Jesus Christ will either “definitely” or “probably” return to the earth before 2050.

Wojcik is not sure if this represents a higher percentage than those fearing the end of the world at the turn of the millennium, the year 2000, when Y2K concerns were rampant. But he is certain that 2012 fears are imbued with much more religious significance at the level of popular or “folk” belief. The apocalyptic ideas tied to Y2K mostly centered on the fear that computers would shut down when the year rolled from 1999 to 2000, resulting in massive infrastructure meltdowns around the world. Not so 2012, an end-time prediction associated with universal forces beyond the power of humans to create or control.

No matter what the source of the prediction, however, Wojcik emphasizes that most doomsday prophecies are ultimately positive from the perspective of believers.

“There is promise in the millennial narrative,” he said. “It is part of what makes the belief so enduring.”

This optimism, he says, extends even to secular apocalyptic scenarios, where “there is this undertone of ‘let it all come crumbling down,’ and then we can go back to living a more simple way of life, maybe as a tribal society, some sort of imagined utopian existence.”

## THE EARTH WILL BE PURIFIED

This fall Wojcik is teaching an upper-division course, *Apocalypse Now and Then: The End of The World in American Culture and Consciousness*.

While the timing of the class capitalizes on the current apocalyptic fervor, Wojcik is using the opportunity to lead his students

THE IDEA OF A  
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through serious research questions and theoretical models of eschatological belief and discourse.

These include three categories of millennialism: catastrophic millennialism, avertive millennialism and postmillennialism.

Catastrophic millennialism is the most fatalistic of the bunch. It is the prediction that a disaster, completely unavoidable and totally devastating, will befall humankind, ending life as we know it. This is the apocalypse in the traditional sense of erupting volcanoes, tidal waves, floods, earthquakes or nuclear war.

Often catastrophic millennialism anticipates a destruction that will purify the earth, with the chosen ones surviving on a renewed and cleansed planet. Widespread belief in the Rapture of the righteous prior to the destruction of the world is a classic example of catastrophic millennialism.

Avertive millennialism, in contrast, puts forth the notion that humans can prevent an apocalyptic catastrophe and bring about a golden age. This thought system is often associated with New Agers, such as those who participated in the Harmonic Convergence of August 16–17, 1987.

Organized by visionary Jose Argüelles, the convergence was purportedly the world's first globally synchronized meditation. Its purpose was to create a planetary signal of positive intention that would align the spiritual and mental energies of humans, preventing both worldly cataclysm and metaphysical calamity and ensuring a more positive future for the earth. Argüelles died in March 2011, but his followers are organizing a similar synchronized meditation event for December 21, 2012, to avert catastrophe and bring about collective salvation.

Consistent with the optimism of avertive millennialists, postmillennialists (sometimes also referred to as progressive millennialists) believe that humans, acting in accordance with a divine plan, will usher in a new era of utopia. With postmillennialism, no catastrophe is associated with the creation of terrestrial paradise. Rather, the transition to a better world results from change that is enacted gradually by people working to fulfill divine mandates.

## **AS AMERICAN AS BASEBALL AND HOT DOGS**

**W**ojcik finds postmillennialism particularly interesting because of its link to religious and social reforms in U.S. history. In the introduction to his book, he points to historians and social scientists who have described the preoccupation with millennialism as central to American history and consciousness, just as deeply embedded in American culture as baseball and hot dogs.

During the American Revolution, the idea of America as a promised land animated popular rhetoric about the war; many ministers preached that a liberated America was the place where Christ would return to erect his kingdom, thereby justifying the revolution on religious grounds. The idea that humanity holds responsibility for fostering a new and more perfect world has permeated the American consciousness ever since.

This perspective laid the postmillennial foundation central to the emerging worldviews of several nineteenth-century religious movements including those of the Shakers and Mormons.

The Shakers believed that their founder Mother Ann Lee was the embodiment of Christ's Second Coming and that God's millennial kingdom had been initiated, to be revealed in full as human beings perfected themselves. The Shakers strove to obtain this perfection by practicing celibacy, gender equality, community and confession.

Postmillennial beliefs are also regarded by some theorists as the ideological catalyst for early feminist consciousness, slave revolts and labor reform.

Suffrage leader Matilda Joselyn Gage, for

instance, spoke of women gaining the right to vote as a millennial turn of events that would usher in a new age of gender equality and world peace.

"Postmillennialists see themselves as carrying out God's will," said Wojcik. "In some cases this has meant fighting for a freer, more equal and more utopian society."

While such ideas may have inspired positive social reform in America, Wojcik notes that a belief that one is acting in accordance with the will of God can also justify acts of violence, even genocide.

Leaders in the Nazi Party, for instance, believed they were working to actualize a new world according to a millennial plan. Chairman Mao's Great Leap Forward, seen from a Western perspective as repressive, has sometimes been characterized as a postmillennial movement.

This fall, Wojcik's students will examine these historical precedents of apocalyptic belief and explore how beliefs are being shaped today, with special emphasis on the role of the Internet. According to the syllabus: "Idiosyncratic online users fascinated by end-times possibilities can now disseminate obscure theories and racist, homophobic, sexist and anti-Semitic ideas that may reach millions of people, and perhaps provoke acts of hatred and violence."

At the conclusion of fall term, Wojcik will head south for his upcoming end-of-days birthday to document the "apocalypse tourism" and end-of-the-world pilgrimages to ancient Mayan temples such as Chichen Itza in the Mexican state of Yucatán. This is the site of one of the largest Mayan cities and the epicenter of activities related to the December 21, 2012, prediction.

Although armed with a couple of camcorders, Wojcik said he really isn't bringing anything different than the average tourist would pack for a tropical locale. He expresses more concern about crowds of anxious seekers than impending global catastrophe. But that's exactly the draw.

"I just can't pass it up," he said. "What does 2012 mean to so many believers? I just want to see and be a part of it. For me, it is the ultimate birthday party." ■

# MAJOR RELIGIONS AND DOOMSDAY NARRATIVES

## Eschatologies—Beliefs About End-Times—Go Back Millennia, Crossing Cultures and Time

**GOD OF LIGHT VS. SPIRIT OF EVIL.** One of the world's oldest apocalyptic traditions persists today in Zoroastrianism, the religion of ancient Iran, which is based on the revelations of the Persian prophet Zoroaster. Formulated in sacred texts that date from the sixth century BCE, Zoroastrian eschatology foretells cycles of cosmic time involving the struggle between the god of light (Ahura Mazda) and the spirit of evil—a conflict that culminates in the arrival of a savior-figure, an apocalyptic battle, the defeat of evil, the raising of the dead, the flooding of the earth with molten metal, a final judgment and the creation of a purified new world.

**ENDLESS CYCLES OF DESTRUCTION, RE-CREATION.** Hindu eschatologies, such as the Vaishnavite tradition, embrace a view of cosmic time as cyclical and infinite, involving an endlessly recurring series of worldly destructions and re-creations. In classical Hindu mythology, the world goes through a cycle of four cosmic ages, or *yugas*, beginning with a golden age and gradually declining over time, ending with the most degenerate age, the *kali yuga*. Described as a time of war, greed and degradation, the *kali yuga* will conclude with a final battle between the demons who rule over the age and the god Kalki, the last Avatar of Vishnu, who appears as a warrior, saves the righteous and defeats evil. The world is then completely destroyed before the earth is created again.

**A BODHISATTVA WILL RESTORE THE DHARMA.** Within various Buddhist traditions it is believed that the Buddha's teaching (the Dharma) will decline over a period of three successive ages, eventually disappearing completely as humanity becomes increasingly selfish, violent and depraved. In some Buddhist eschatologies, a savior Buddha or bodhisattva will appear to restore the Dharma. In Tibetan Kalachakra traditions, the

savior-figure is said to come from the hidden kingdom of Shambhala, and as the twenty-fifth and final Kalki King, he will incarnate in the world during a time of war and evil to bring about paradise on earth.

**THE FLOOD.** Sacred narratives about a cataclysmic flood recur in world mythology and religion, from the well-known account of Noah and the Ark to the Sumerian and Assyro-Babylonian versions of *Gilgamesh* (pre-2000 BCE) with its flood hero Utnapishtim. Comparable narratives occur in Mesoamerican mythology and among the Maori people of New Zealand as well as in Native American, Australian Aboriginal and Chinese traditions. In most, the flood is sent by deities to punish humanity and a hero survives the deluge by following divine warnings and building an ark, raft or other vessel. In Greek mythology, Deucalion and Pyrrha escape the great flood in an ark; in Hindu cosmologies, Manu builds a huge boat to house two of each animal; and in Hawaiian tradition, Nu'u and his family survive the flood in a house-boat that eventually lands on top of Hawaii's highest volcano, Mauna Kea.

**THE BOOK OF REVELATION.** This last chapter of the Bible's New Testament describes an apocalyptic battle between the forces of good and evil, the resurrection of the dead and the establishment of a millennial realm. Based on the visions of John of Patmos, the esoteric language and symbolism of Revelation has evoked diverse interpretations, with its imagery of the Four Horsemen of the Apocalypse, terrifying beasts, angelic beings, the judgment and fall of Babylon and the Mark of the Beast. In this prophecy, the end of the world is preceded by a period of increased sinfulness and depravity, followed by a time of tribulation and the rise of the Antichrist, after which Christ returns and defeats evil at the battle of Armageddon, ushering in a millennium of peace and justice.

**THE DAY OF DOOM.** In Islam, revelations given to Muhammad and recorded in the Qur'an predict the imminent destruction of the world (the "Day of Doom"), the resurrection of the dead and the final judgment of humanity. In this tradition, at the end of time the physical world will become unstable, with mountains turning as pliant as wool and the sky torn asunder. Assorted Islamic apocalyptic traditions also include the appearance of the Dajjal (the "false messiah"), the return of Jesus to bring justice on earth and the coming of Mahdi ("the rightly guided one") as the redeemer of righteous Muslims before the final destruction of the world.

**GHOST DANCE.** The Native American Ghost Dance movements of the 1870s-1890s arose as a response to catastrophic oppression. Stressing the revival of traditional ways of life, Ghost Dances were performed as a means of seeking divine intervention, in which the white oppressors would be destroyed and ancestors and herds of bison would return to a cleansed earth. The violent suppression of the Ghost Dance and the massacre of more than 150 Lakota Sioux at Wounded Knee, South Dakota, in 1890 remains an emblematic event in the history of the slaughter of Native people and destruction of their culture.

**DREAMTIME.** In the cosmologies of some Australian aboriginal groups, the ritual performances of Dreamtime stories are enacted in part to sustain and renew the world. Among the Warlpiri people, for example, ancient sacred songs and ceremonies are believed to be unalterable and eternal; their cyclic enactment ensures the continuation of life and averts apocalypse. Failure to correctly perform these sacred ceremonies and mythic narratives will endanger or end existence.

—Daniel Wojcik

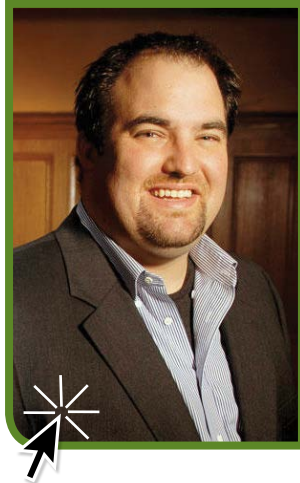
# Game Changers > > > >

They came to the UO to major in political science. They left to conquer the world—the corporate world, anyway. Jill Hazelbaker, Tucker Bounds, Stephen Gillett and Renée James—all political science alums—are now top executives with some of the biggest names in business: Google, Facebook, Best Buy and Intel, respectively.

Could they have predicted that courses exploring political theory and international policy would catapult them to the top of today's vanguard of technology innovation and distribution?

Probably not, but that's the beauty of the liberal arts, which pave the way for success in any field by fostering essential skills: communicating persuasively, framing relevant questions, collecting and analyzing data, working collaboratively toward creative problem-solving.

And it gets even more specific: Hazelbaker and Bounds—Republicans on the legendary liberal UO campus—learned to work across the aisle; Gillett and James claim that course work topics ranging from NAFTA trade agreements to religious diversity are paying off as they make decisions daily that affect tens of thousands of employees and the bottom lines of multibillion-dollar companies.



Stephen Gillett '98

**President, Best Buy Digital,  
Global Marketing and Strategy**

When Stephen Gillett played football for the University of Oregon in the 1990s, his job as offensive guard was to clear the way for teammates to run to glory.

Now that he's in the corporate world, it's Gillett who keeps scoring touchdowns.

From Silicon Valley to Starbucks to the upper echelons of Best Buy, Gillett has enjoyed a meteoric ascent in consumer and digital technology. His recipe for success could scarcely be more original, combining equal parts football player, risk taker—and avid online gamer.

Gillett is president of Best Buy Digital, Global Marketing and Strategy, and he also serves as an executive vice president with the Minnesota-based consumer electronics giant. He's been named to *Fortune* magazine's "Executive Dream Team" and its "40 Under 40" list and was *Information Week's* "Chief of the Year" in 2011.

Comparing his career philosophy to that of the big-wave surfers in the movie *Riding Giants*, Gillett says he relishes taking on an outsized challenge when the danger is a professional wipeout. It prompted him to join the Starbucks reinvention in 2008 as a chief information officer and executive

vice president of digital ventures and it propelled him to join Best Buy last April as a "transformation leader."

"I have a passion for consumer technology and how it's used," Gillett said. "I like riding the giants. It's exciting."

Gillett has been a techie since he was a nine-year-old programming software on his father's IBM. He left the UO football team to get a tech job and spend more time in classes that would help him join the emerging Internet boom; he also started a side business doing tech support and consulting. After graduation, he spent nearly a decade in Silicon Valley, holding senior technology positions with Yahoo! and CNET Networks.

Gillett was later a chief information officer for Corbis, a digital media company owned by Bill Gates, and he worked closely with the Microsoft founder.

"What I learned from Bill is that you have to have a passion for what you do if you ever want to succeed," Gillett said. "If you go in as a hobbyist or a casual player, he will sense that a mile away."

Gillett's affinity for politics made

**"One minute I'm bagging groceries at Albertson's on Hilyard and the next I'm in an article on the cover of *Fortune* magazine. At the end, I'm still just the kid from South Eugene High School."**

## Four political science majors have staked out careers at the vanguard of high tech.

political science the obvious choice while at the UO. And as he climbed higher up the corporate ladder, he found ways to put that education to work.

“As I started to get up in the ranks of corporate America, I started to deal with public policy, NAFTA trade agreements, the western European financial crisis,” Gillett said. “All of a sudden, all of the studies I did as an undergraduate really became relevant.”

Gerry Lopez, president and chief executive officer of AMC Entertainment, who worked with Gillett at Starbucks, said Gillett has “a sense of wonderment and a can-do attitude that simply drives him to excel.”

“He leads by getting folks to buy into his vision of seizing moments of disruption to launch something new,” added John Seely Brown, former director of the Xerox Palo Alto Research Center and Amazon board member.

Gillett’s business education also owes to an unusual source. He has been rated among the most innovative guild masters in “World of Warcraft,” an online role-playing game in which millions of participants in a virtual world engage socially, organize quests and celebrate achievements.

“I learned much about leadership and teams in gaming well before I learned it in the corporate world,” Gillett said. “Long before I managed international teams and language barriers and hiring people and building a treasury, I was doing it in the virtual world.”

Gillett acknowledges that his rapid rise occasionally leaves his head spinning. He credits a stable family and marriage to his high school sweetheart, Aisha, also class of ’98 at the UO, for keeping him grounded.

“It is a little surreal,” Gillett said. “One minute I’m bagging groceries at Albertson’s on Hilyard and the next I’m in an article on the cover of *Fortune* magazine. At the end, I’m still just the kid from South Eugene High School.”



### Renée James '86

#### Senior Vice President and General Manager, Software and Services Group, Intel Corp.

**The skinny on Renée James** is that she can sit in a room full of computer engineers and not just understand what they’re saying to her—she can help them understand each other.

“That’s what people say about me,” James said, laughing. “One of the things that a liberal arts background gives you is the ability to create analogies from historical reference or literature or some other point of view and help people bridge the gap between pure technology and how it’s useful to you as a human being. That marriage between how you build it and how you use it is really quite important to tech.”

James was speaking by cell phone as she navigated the streets of Portland, making the most of every minute in her day. As a wife, mother and executive with a Fortune 50 company, she has turned the task of scheduling into a high art.

Consider a typical week: Board meeting on Monday in London, fly back Tuesday for a board meeting in California on Wednesday, make it to Eugene by Thursday for your twelve-year-old son’s

Little League game—all the while keeping appointments with your personal trainer or hitting the gym in whatever hotel is home for the night. It’s like this two or three weeks out of every month.

“I am absolutely one of the most disciplined time managers you’ll ever meet in your life,” James said. “I use every minute purposefully and I don’t like people to waste my time.”

James is senior vice president and general manager of the software and services group for Intel Corporation. She is responsible for research and development as well as product delivery for all segments of Intel’s worldwide software and services portfolio, plus the company’s developer programs across the globe.

James would like to say she’s shocked by her success. But that wouldn’t be honest.

“I’m a goal-oriented person,” James said. “You don’t have to be privileged to go to a great university or have a great job. You have to work hard. And I worked really, really hard.”

With her political science major, James envisioned a career in foreign policy. But she was working for a start-up in Silicon Valley when it was purchased by Intel more than twenty-five years ago and the rest is history. James’ ascent with Intel included a four-year stint working alongside company founder and high-tech legend Andy Grove, a turning point in her career.

“He taught me a lot about understanding people, their motivations—thinking about what really was going on,” James said. “Business is a lot about understanding what’s really happening, versus what people say.”

Doug Fisher, vice president and general manager of the systems software division, called James “the driving force behind software at Intel for twenty-plus years.”

“She has an amazing ability to keep a

pulse on the industry shifts and quickly incorporates changes into our software strategy to take advantage of them,” Fisher said.

A staunch advocate of improving math and science opportunities for girls, James was an overachiever as a kid. Her father was the first in his large family to go to college and James developed the same work ethic.

“I was a relatively serious kid in the sense that I had sports, I had dancing, I was very, very competitive—I wanted to be the best,” James said. “The other kids were out goofing around. I wasn’t.”

At the UO, James was introduced to a wealth of diverse ideas in the College of Arts and Sciences. Classes in ethics, philosophy and religion gave her critical insight into cultural diversity; that’s no small concern, given James must navigate the customs and priorities of tens of thousands of employees whom she supervises across the globe.

Even more fundamental to her success, James said, was the guidance her education provided in how to think critically.

“Teaching people to think is part of what you do in a liberal arts college,” James said. “And being a critical thinker actually is applicable to a lot of jobs.”

**She can sit in a room full of computer engineers and not just understand what they’re saying to her—she can help them understand each other.**



## Tucker Bounds '02

### Manager of Corporate Communications, Facebook

**Public relations guru** Dan Lavey recalls the exact moment when he realized his young friend, Tucker Bounds, had arrived.

Lavey, president of Portland-based Gallatin Public Affairs and a 1988 UO history alumnus, was watching *Larry King Live* during the 2008 Democratic convention. A panel of Republicans had been assembled for reactions and the first question went to Bounds, a spokesman for presidential candidate John McCain.

“Well, Larry,” Bounds responded, and then continued with his answer.

For Lavey, those first two words said it all. “Referring to him not as ‘Mr. King’ but ‘Larry’—Tucker understood the theater in which he was playing,” Lavey said. “If he had called him ‘Mr. King’ he would have looked like a young man, somebody who didn’t belong. He demonstrated, ‘I belong here.’”

Whether speaking for a presidential candidate or in his current role as manager of corporate communications for Facebook, Bounds holds the same philosophy: Take on new challenges, even if the stakes are high.

“At every turn I made a decision to try

something different and take on risks,” Bounds said. “In campaign politics and similarly at places like Facebook, you’re moving quickly to set up an operation, build infrastructure and end with the successful launch of a project or an election day.”

Lanky and loquacious, Bounds got his start in politics while at the UO, volunteering with a candidate for the Eugene City Council.

The university provided Bounds with a broad network of “smart, dynamic” alumni who helped him climb the career ladder, he said. Bounds maintains those friendships today; he and Jill Hazelbaker (right, whom he worked with on the McCain campaign) still meet for drinks, proving that even within the head-to-head competition between Google and Facebook there is room for two Ducks to maintain school ties.

As Republicans at the Democrat-dominated UO, Bounds and Hazelbaker also learned quickly to appreciate different points of view—something that Bounds credits for his success.

“Maybe the tenor of politics would be improved if everybody had to go into an environment where they had to be willing to find common ground with others to get along,” he said. “That sometimes is what’s missed in Washington.”

Born in eastern Oregon, Bounds was raised in a family that valued politics and he developed an appreciation for hard work in the fields of a friend’s wheat farm.

Previous to the McCain campaign, Bounds worked with Oregon lawmakers Greg Walden and Gordon Smith, the 2004 Bush campaign and the 2006 Republican National Committee. *Campaigns & Elections* magazine named him a “Rising Star” in 2009.

Politics can be nasty and a spokesman must remain composed under the most trying of circumstances. In a classic “gotcha” interview by CNN’s Campbell



Brown during the McCain campaign, Bounds displayed his rural-roots politeness, repeatedly allowing Brown to interrupt as he defended running mate Sarah Palin's foreign policy experience.

"Working on a wheat farm and working on a campaign are the same experience—you have to work every available moment," Bounds said. "You have to be up and ready for the reporters and making the most of every day. You can either choose to embrace it or you can do something else."

With his move to the private sector, Bounds joins a culture in which the fruits of his labor could be years in the making.

What doesn't change is the near-daily pressure to get on top of the issues—fast—and speak to them with the authority of an expert.

"Being on point and being able to move quickly—that's what's required of us every day," Bounds said. "There's a saying we use on the Facebook communications team: 'Move fast and speak clearly.'"



## Jill Hazelbaker '03

**Director of Corporate Communications, Google Inc.**

**In the summer of 2007**, John McCain's primary campaign was in the ditch.

The former Republican front-runner was low on dough, slipping in Iowa and New Hampshire polls and forced to argue that he was not out of the race.

So McCain gutted his team and elevated a few key staffers to leadership positions—including Jill Hazelbaker, then McCain's New Hampshire communications director.

Hazelbaker became McCain's national communications director and one of his closest confidants. Moving forward, McCain recommitted to grass-roots politicking, first taking New Hampshire and then his party's nomination for president.

"During his ballroom victory speech in New Hampshire, I remember thinking, 'this is a huge moment in my life,'" Hazelbaker said. "I was incredibly proud of what we had done."

Hazelbaker's success owes largely to a steadfast commitment to seizing opportunities. "In my career, I've sought out successful people and asked for their help," she said. "Opportunities come from a willingness to ask for them."

Now director of corporate communications for Google, the Salem native's path to private-sector prominence runs through politics: Intern for Representative Greg Walden while she was a college student; member of Senator Gordon Smith's 2002 re-election campaign and Jim Zupancic's campaign against U.S. Representative Darlene Hooley; campaign spokeswoman for New Jersey Republican Thomas Kean's U.S. Senate campaign in 2006; then McCain adviser and in 2009, a member of New York Mayor Michael Bloomberg's re-election campaign.

Hazelbaker is "fearless," said Dan Lavey, a Portland PR expert and a mentor for Hazelbaker and Bounds. "(In politics) you have to be fearless and resourceful, you've got to be willing to accept any challenge, hop on any plane, make any phone call and be willing to execute any

assignment and never whine about it." Said Lavey: "Jill is about getting it done."

The definitive image of Hazelbaker comes courtesy of her mother, Becky: She described visiting her daughter once and seeing Hazelbaker rise by 5:00 a.m. to work out on her treadmill while looking over a stack of press clippings, watching the early-morning news and scrolling through e-mail on her Blackberry.

Hazelbaker has always pushed herself. She walked at nine months and rode a bike sans training wheels at four. She was a voracious reader and, in her estimation, "probably the youngest person who ever cared about the evening news."

At the university, she got her first taste for politics, campaigns and working across the aisle. "The UO opened my eyes to the fact that there are people of all different stripes and you don't have to agree on everything," Hazelbaker said. "The spirit of the UO is 'let's roll up our sleeves, dig in and solve this problem regardless of our differences.'"

At Google, Hazelbaker manages executive, crisis, policy and financial communications. Her schedule is a bit more flexible—she doesn't get up until 5:30—but there is plenty of pressure as the spokeswoman for one of the world's top newsmakers.

Hazelbaker's first day with Google, in fact, coincided with the company's announcement that it had been hacked and would no longer censor search results from China. A woman who hardly knew a browser from an operating system found herself leading Google's public response.

"It was the most interesting project I've ever worked on," Hazelbaker said. "What was surprising to me was how similar it was to my experiences with McCain and Bloomberg."

"In the end, managing well in crisis is about being fast and accurate," Hazelbaker said. "And knowing when to stop talking." ■

## Theater as a (Re)Defining Experience

**T**hroughout elementary and high school in Monmouth, Oregon, La Donna Forsgren was the only African American in her class.

Her colleague, Michael Najjar, had a similar experience growing up as part of a minority, as a first-generation Arab American.

As recent additions to the UO's theater arts faculty, both are focused on research and performance inspired by their personal experiences.

Even though their respective subjects—African-American theater and Arab-American theater—are wholly different, Forsgren and Najjar are both interested in the stage as a means to explore, comment on and critique issues of race, immigration, discrimination, identity and justice.

"They're brand new energy," said John Schmor, head of the theater arts department. Schmor believes their academic expertise, experience as directors and intimate relationship with their subject matter are an ideal mix.

"We want students to graduate with not only performance experience, but also with an understanding of the historical and political phenomena that inspire the theater arts," he said. "La Donna and Michael deliver both."

### Embrace or Sublimate?



Raised in Albuquerque, New Mexico, Michael Najjar—whose birth name is Malek—recognized early on the incongruence

between his home life of traditional Lebanese food and folklore and his day-to-day experiences as an American kid. Most challenging were the incidents that arose whenever a crisis broke out in the Middle East.

"By virtue of the fact that we were Arab American, we were automatically associated with any of the conflicts from the Middle East," he said, even when such conflicts did not involve Lebanon.

For instance, when the U.S. bombed Tripoli in 1986, "I was teased as being Libyan—read: supporter of Qaddafi," he recalled. "Or when there were outbreaks of Palestinian violence I would be called a Palestinian. What they meant was that I was like those people."

Like many first-generation Americans, he grew up straddling two cultures.

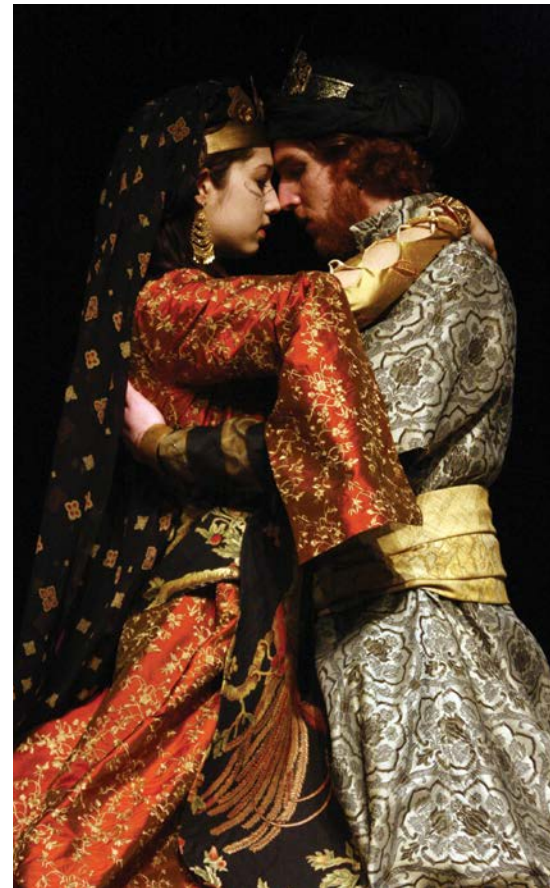
"We are 'hyphenated Americans,'" said Najjar. "Many Arab Americans, like other ethnic groups, have dual loyalties: an identity in a homeland and also pride in being an American—with tension arising between the two especially in times of strife."

And when there's strife—like, say, in a world complicated by the 9-11 attacks and subsequent wars—the question becomes "do you sublimate your identity, or do you embrace it?" Najjar said. For instance, "there are many Arab Americans who warn, 'don't speak Arabic in public.'"

Najjar recognizes this fear of persecution as a pressure universal to immigrant groups throughout history. "Italian Americans suffered in the 1920s, Asian Americans during World War II. Today Arab Americans and Latin Americans are going through it," he said.

For Najjar, theater is a medium to bring this experience to life, and to redefine Arab culture for American audiences.

The latter objective was a motivating factor behind his decision to direct Dominic Cooke's Royal Shakespeare Company adaptation of *Arabian Nights*, as his first UO production last spring.



"Americans have images of Arab nations based on fantastical interpretations of the Middle East," said Najjar, pointing to Disney's *Aladdin* as an example. "In many ways, the tales of *Arabian Nights*, as they've been handed down to us by the French and British, have only perpetuated our view of the people of the Middle East and South Asia as utterly foreign."

While U.S. children may be familiar with iconic imagery of Arab folktales—flying carpets, camels and sand dunes—Najjar said he wanted his production to focus on the people in *Arabian Nights*.

"One of my goals was to take these stories, which are beautiful, human stories, and get them back to the source material—to a perspective that is not based in Eurocentric views," he said.

*Arabian Nights* follows the traditional story line of *One Thousand and One Nights* in which literature's legendary storyteller—the play's female protagonist, Shahrazad—tells to a murderous king 1,001 consecutive nights of tales to save herself from execution. Among the tales she tells are “Ali Baba and the Forty Thieves” and “History of Sinbad the Sailor.”

In Najjar's production (left), audiences were treated to elaborately choreographed Middle Eastern dancing and costumes designed to reflect ancient Persian dress.

“Ultimately it's a play that speaks to humanity, and to the story of what happens when people lose their way,” Najjar said.

## A Healthy Respect for the Absurd



Race may be a serious subject, but serious is not a word you would use to describe La Donna Forsgren.

“I love to laugh and I have a healthy respect for the absurd,” said Forsgren. “Just because something is a tough subject doesn't mean it can't make you laugh.”

Forsgren is the first Black theater professor to set up shop in Villard Hall, but is undeterred by the relative racial homogeneity of Oregon and the UO campus. “This department is obviously interested and supportive of expanding perspectives on theatrical material,” she said. “The UO is excited about diversity.”

Forsgren said she embraces the opportunity for self-examination and rich contemplation that discussions about race bring to the surface. “People don't like to talk about race, but it is important that we do,” she said. “Race influences our decisions, interactions and beliefs.”

Forsgren sees theater as a means for overcoming the discomfort the subject of race can create.

“Theater is an opportunity to engage heavy topics in a safe environment, if you can do it in a way that is entertaining,” she said. She calls her philosophy

“edutainment”—teaching through entertainment. “I want to get rid of the passive audience. I take these topics and make them playful.”

Among her inspirations are comedians. “I love Dave Chappelle. He's funny, but he also makes you think critically,” she said. Chappelle shot to stardom for his parodies of American culture, especially racial stereotypes, on his sketch comedy TV series that ran from 2003 to 2005.

Her classes have been packed, with a waiting list of students eager to fill vacancies. “A wide range of students is interested in the subject of race,” said Forsgren. “I have African American students, international students, white students. It makes for lively conversation.”

Last spring Forsgren made her UO directorial debut with Robert Alexander's, *I Ain't Yo' Uncle: The New Jack Revisionist Uncle Tom's Cabin* (below), a play in keeping with her philosophy.

The play, a satire, explores America's racial past by bringing the characters of Harriet Beecher Stowe's influential novel, *Uncle Tom's Cabin*, to life in the twenty-first century. On stage, modern versions of Uncle Tom, Topsy and Eliza emerge from the streets of the inner city to put Stowe on trial for creating stereotypes about African American identity.

Forsgren said she picked the play because it offered the opportunity to explore the cultural construct of “blackness”—from overtly racist blackface minstrel performance traditions of the past to stereotypes within popular culture today.

The fact that it incorporates 1990s hip-hop, which she loves, was also a selling point. “It's also just plain funny,” said Forsgren. “For those who have ever wondered what Stowe's characters would say if they could write their own stories, this show provides the hysterical answers.” —PH



# Estudar Língua Portuguesa?



**Last year, Brazil overtook** the United Kingdom as the world's sixth largest economy. The nation, home to 154 million Portuguese language speakers, is also living large on the world stage by hosting the 2014 World Cup and 2016 Summer Olympics.

Long tagged as “the country of the future,” Brazil’s future has arrived, a number of pundits suggest.

“It’s an enormous country that has been relatively invisible to Americans for a long time,” said Robert Davis, director of language instruction in the Department of Romance Languages. Davis has been instrumental in formalizing a new Portuguese language program at the UO.

“It takes several years to build a language program,” he said. “We don’t want to lag behind Brazil’s awakening.”

Since 2006 the UO’s World Languages Academy (WLA), a program affiliated with the Yamada Language Center, has been offering Portuguese. Over the past few years, these courses have attracted a steady increase in student interest, and now the Department of Romance Languages has decided to advance Portuguese to a higher-profile status.

While language classes offered through the WLA create opportunities to acquire language skills, the courses there don’t

always count toward credit for a minor or major.

Now, as the fourth language in the Department of Romance Languages portfolio (along with Spanish, French and Italian), Portuguese will provide those wishing to study the language the benefit of greater breadth and depth of for-credit

offerings.

This fall, language instructor Simone Da Silva, who managed the Portuguese program at the WLA, will teach a course called Lusofonia: The Portuguese-Speaking World, the UO’s first-ever course exploring the culture and history of Portuguese-speaking communities around the world.

In addition to Brazil and Portugal, several other countries count Portuguese as their official language, including Angola, Mozambique, Guiné-Bissau, Equatorial Guinea, Cape Verde and São Tomé e Príncipe. It also serves as the lingua franca of both East Timor in Southeast Asia and of the Macau region in China. It’s an official language on every continent except North America. Worldwide, there are 178 million speakers, making Portuguese the seventh most spoken language.

Davis and Da Silva are also developing an upper-division Portuguese curriculum. One intriguing possibility will be cross-disciplinary opportunities.

“Biologists and environmental scientists are interested in Portuguese because they are studying the Amazon, while business students are interested in Brazil’s markets,” said Da Silva. “We now have a chance to develop courses that build on these interdisciplinary connections.” —PH

## Whose National Culture?

**Though the 2010 U.S. Census** shows that nearly 30 percent of Arizona’s population identifies as Hispanic or Latino, you won’t find any Chicano studies programs in K–12 classrooms in the state. Nor will you find associated literature at many school libraries.

That’s because a 2010 state law bans Chicano ethnic studies from being taught in primary and secondary schools—and the Arizona legislature also recently introduced a bill to prohibit similar curricula at the university level.

The ban is one of several recent laws passed in Arizona that have figured significantly in the heated immigration debate.

**A 2010 Arizona law bans Chicano ethnic studies from being taught in primary and secondary schools.**

“It’s a pretty egregious example of censorship going on in our schools,” said David Wacks, head of the UO Department of Romance Languages. “It raises questions about who gets to decide what our national culture is going to be.”

On May Day last spring, fourteen UO professors, staff and faculty members from departments across campus joined Wacks

# Revolutionary Recipes

The growth of the organic and local foods sector is usually praised as a cultural revolution with positive repercussions for the planet and public health.

But Courtney Thorsson, an assistant professor of English specializing in African-American literature, notes that the public face of the organic movement is largely white and middle class. In this sense, she views the movement as a trend that underscores race and class disparities when it comes to access to healthy foods.

Thorsson makes this critique, not as a condemnation, but to illustrate that our approaches to procuring, preparing and consuming food speak volumes about who we are and where we come from.

To explore the role food has played in the history and culture of African Americans, Thorsson is working on a book about the role of culinary discourse in African-American literature.

She's discovered that culinary writing can reveal overlooked aspects of history, especially as experienced by African-American women whose perspectives have often gone unrecorded due to racial and

gender discrimination.

From author Gloria Naylor's description of recipes used by wives to poison their abusive husbands in the novel *Linden Hills*, to Lucille Clifton's poetic riff on Aunt Jemima's pancake syrup (right) to Vertamae Grosvenor's recipe for "Harriet Tubman Ragout" in her autobiographical cookbook *Vibration Cooking*, Thorsson has compiled numerous examples where food serves as a medium through which female authors talk about race, privilege and identity.

"For many African-American women, the kitchen has been an enormous space of resistance and power," said Thorsson. "Scenes of cooking and eating in literature can record and convey that history."

In addition to her upcoming book on the subject, Thorsson teaches the graduate seminar, African-American Foodways. One of the key themes in the class is the relationship of food writing to twentieth-century movements such as black arts (the artistic branch of the black power movement), Black Nationalism and feminism. —PH

## aunt jemima

by Lucille Clifton

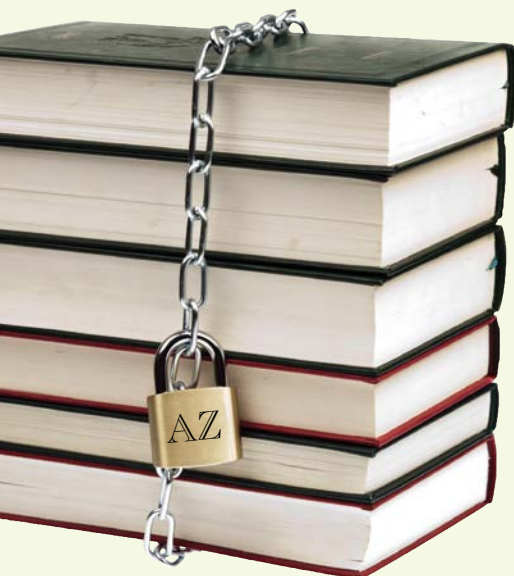
white folks say i remind them  
of home i who have been homeless  
all my life except for their  
kitchen cabinets

i who have made the best  
of everything  
pancakes batter for chicken  
my life

the shelf on which i sit  
between the flour and cornmeal  
is thick with dreams  
oh how i long for

my own syrup  
rich as blood  
my true nephews my nieces  
my kitchen my family  
my home

Lucille Clifton, "aunt jemima" from  
*The Collected Poems of Lucille Clifton*.  
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on stage at the EMU amphitheater to read selected passages from literature banned in Arizona.

Wacks said he organized the event to show support for students and teachers in Arizona and to raise public awareness of the issue.

He started off the reading with a passage from Howard Zinn's *A People's History of the United States*. While not explicitly a Chicano studies book, Zinn's volume offers a view of U.S. history from the perspective of civilians outside the dominant power structure, including slaves, laborers, suffragettes and Native Americans—perspectives often ignored in textbooks.

Dozens of students and others from the campus community gathered on the steps of the amphitheater to listen in.

Spanish professor Juan Epple turned

his stage time over to the students of his upper-division Spanish theater course, who acted out—in Spanish—two short plays currently outlawed under interpretation of the Arizona statute: *Soldado Razo* and *Los Vandidos*, both by Chicano playwright Luis Valdez.

Graduate student Zelda Haro, who identified herself as a Yaqui Chicana from Tucson (the Yaqui are a Native American tribe from what is now northern Mexico), read from the book *Ceremony* by Leslie Silko, reminding listeners that the Arizona ban also extends to Native American books and poetry.

Other books banned under the Arizona statute include *Drown*, by Pulitzer Prize winner Junot Diaz, *The House on Mango Street* by American Book award winner Sandra Cisneros and even Shakespeare's *The Tempest*. —PH

# Social Sciences

## Loved for Their Music, Hated as a People

*New Book Aims to 'De-exoticize' An Ethnic Minority*



CAROL SILVERMAN

**R**oma, Europe's largest ethnic minority, have long been revered internationally for their folk music—but reviled as an “inferior” subculture.

Romani music—Gypsy music—was put on the world's stage during Madonna's 2009 summer tour, when the American pop star performed a fusion of Romani music to an enthusiastic audience. But when she went on to bemoan the plight of the Gypsies, this elicited boos from 60,000 Romanian fans, thus exposing the dichotomy—“loved for their music, hated as people.”

So states UO anthropologist and folklorist Carol Silverman, who recounts this episode in her new book, *Romani Routes* (Oxford University Press). The book builds on Silverman's decades-long involvement with Roma, beginning in the early 1970s when she was an undergraduate at City University of New York.

As a singer and dancer, Silverman was inspired to make annual pilgrimages to Eastern Europe to attend Romani celebrations and folk festivals. Along the way, she learned Balkan languages, studied

the politics and immersed herself in Romani culture in the Balkans and in the United States, pursuing this passion as an anthropologist and a scholar.

Her new book looks closely at Romani music and culture, primarily in the Balkans, from the 1970s to the

present—tracing the impact of socialism, its ultimate fall and the current challenges of rising antimigrant sentiments, deportations and physical attacks. It explores Roma in their communities and in the world music scene, while also investigating how they have migrated to seek better economic opportunities and escape discrimination.

Roma have lived in the Balkans for more than 600 years, originally migrating from India, yet have always remained “perpetual outsiders as a people but insiders in terms of music and culture,” Silverman said. Today's Roma population in Europe is estimated at 12 million.

“This book is about thirty years of my heartfelt research,” said Silverman, a 2010 Guggenheim Fellow. Her aim, she says, is to “de-exoticize Roma”—in other words, to challenge the well-worn stereotypes. “Roma are also doctors, lawyers, activists and teachers—no different than any other people,” she said.

Purchasers of her book also get access to a password-protected companion website that contains more than 100 videos, audio segments, photographs, song texts and other supplementary materials. —LR

## South Asia on the Rise

**South Asia is home** to nearly one and a half billion people and is one of the world's most important geopolitical areas. But the region is little understood by many in the West.

Addressing this gap, the UO is launching a new minor in South Asia studies that builds on the expertise of current faculty members as well as the research of a new assistant professor in history, Arafaat Valiani, whose recent book explores violence in contemporary politics in India.

India dominates South Asia; its economy, population and geographic

territory are larger than all other South Asian countries combined. India and its rival Pakistan have fought three major wars since India won its independence in 1947 and continue in a state of nuclear-armed mutual hostility—with the status of Kashmir, divided between them, a continuing flashpoint.

Although many of the poorest people in the world live in this region, it is also home to a rapidly growing middle class wielding much economic power.

India, Pakistan and Bangladesh—the successor states to the British Indian Empire—form the core of South Asia,

# Medical Marijuana— Menace to Teens?



**Marijuana use by tenth and twelfth graders** has risen over the past several years, with roughly one in fifteen high school seniors smoking marijuana daily or near daily, according to a 2011 report from the University of Michigan Institute for Social Research.

Could this have something to do with the passage of medical marijuana laws?

In 1996, California became the first state to legalize medical marijuana. Since then, sixteen states have passed similar legislation. Anecdotal evidence suggests that legalized pot is making its way into the hands of teenagers—prompting UO economist Benjamin Hansen and colleagues at two other universities to investigate.

Hansen—along with Daniel I. Rees of the University of Colorado at Denver and D. Mark Anderson of Montana State University—designed a study to examine the effects that the passage of medical marijuana laws has on teen marijuana use in those states, compared to neighboring states.

Their conclusion: there's no statistical evidence that legalization increases the



probability of teen pot smoking.

The study examined the relationship between the legalization of medical marijuana and marijuana consumption, using both national and state data on high school students' drug use behavior. At the time the researchers collected their data, thirteen states had legalized medical marijuana. Since the conclusion of the study, three more states and the District of Columbia have established such laws and

legislation is pending in seven additional states.

The researchers examined the relationship between legalization and various outcomes such as marijuana use at school, whether students were offered drugs on school property and the prevalence of alcohol and cocaine use. They found no evidence that legalization led to increases in any of these associated behaviors.

Federal officials, including the director of the Office of National Drug Control Policy, and certain law enforcement agencies argue that the legalization of medical marijuana has contributed to the recent increase in marijuana use among teens in the United States. They have targeted dispensaries operating within 1,000 feet of schools, parks and playgrounds.

“Our results are important given that the federal government has recently intensified its efforts to close medical marijuana dispensaries,” said Hansen, who studies risky behaviors. “In fact, the data often showed a negative relationship between legalization and marijuana use.” —LR

**There's no statistical evidence that legalization increases the probability of teen pot smoking.**



along with smaller states on its periphery: landlocked Nepal sprawling across the Himalayas, the island state of Sri Lanka, the Andaman and Nicobar Islands, and another major flashpoint, Afghanistan.

As a new faculty member in history, Valiani brings to the UO expertise in Indian nationalism, the significance of religion in the public spheres of South Asia and linkages between revolutionary movements and terrorism. He has additional expertise in Pakistan studies as well as Islam in South Asia.

He will be one of four core faculty members for the new South Asia minor, joining Anita Weiss, who studies culture, development, social change and political transformations in Pakistan; Lamia Karim,

whose recent book, *Microfinance and Its Discontents*, provided a widely referenced critique of microlending practices in Bangladesh; and Sangita Gopal, who explores the intersection between traditional literature and film, with a special interest in Bollywood cinema.

The minor will require students to take 24 course credits in three thematic areas: history, religion and philosophy; contemporary South Asian issues; and media and culture. An additional requirement: students must show at least first-year proficiency in a South Asian language or travel to South Asia for one term of study or an internship. Valiani will teach the core required course, History of South Asia. —LR

# Liquid Natural Gas—Boon or Bust?

*UO Geographer Warns of the Downside*



**More than 5,000 miles separate** Coos Bay, Oregon, and the country of Bolivia.

But they are both sites of intense conflict over liquefied natural gas (LNG) projects, said Derrick Hindery, an assistant professor of geography and international studies.

Hindery has studied the environmental, social and policy impacts of LNG projects from areas of extraction in South America as well as natural-gas import and export terminals in Baja California, southern California and Oregon.

His verdict: LNG projects are hard on both marginalized communities and the environment, and the economic benefits are uncertain.

Why is a geography professor studying natural-gas projects?

“Geography is a very old discipline that integrates the natural and social sciences,” Hindery said. “Projects like the Coos Bay LNG terminal are a perfect example of how you cannot divorce the social dimension from environmental dimensions. You have to look at the whole life cycle of a project and potential conflicts all along the supply chain.”

Opponents earlier this year defeated a proposal to import liquefied natural gas at Coos Bay, claiming unacceptable environmental impacts. The Jordan Cove Energy Project intends to submit a new application in September to build an export terminal instead.

Hindery plans to do field research in Coos Bay in 2014 that would incorporate what he has learned in Bolivia into academic and policy-oriented analyses that benefit local communities.

“Even though I’m critical of LNG, that’s not to say I have ideological blinders,” Hindery said. “I’m looking to see what the benefits are, for whom, how they are distributed, to what ends and with what effects.”

Project sponsors and governments often try to locate natural gas projects in vulnerable or indigenous communities that are expected to present less resistance, Hindery said.

In 1999, Enron and Shell used a \$200 million loan from the U.S. government to build a pipeline through Bolivia’s Chiquitano Forest, perhaps the largest remaining tract of undisturbed tall dry forest in the neotropics, if not the entire world. The damage to the environment

**Hindery plans to do field research in Coos Bay in 2014 that incorporates what he has learned in Bolivia.**

and Chiquitano indigenous communities was substantial, Hindery said.

Similarly, the proposal to build an LNG terminal in Coos Bay appears to be an attempt to avoid the tough opposition that resulted in other terminal projects being defeated in northern Oregon and California, Hindery said. But he thinks resistance by groups like Citizens Against LNG, the Western Environmental Law Center and KSwild has proved tougher than the companies anticipated.

Liquefied natural gas is promoted as a relatively clean fuel. But the greenhouse gas emissions associated with the life cycle of production, transportation and combustion can be as bad as coal and are much higher than those from greener alternatives such as solar or wind power, Hindery said.

Jordan Cove project officials said the LNG terminal and associated projects would bring a \$5 billion investment to the area and provide long-term, stable employment for more than 120 people at wages significantly above the area average.

But Hindery believes other projects might better serve the area.

“It’s possible that Coos Bay could get a bigger economic boost out of an alternative such as ecotourism, which would be easier on the environment,” he said. —MC

*Read about an oceanographer’s Coos estuary model on p. 27.*



# OEF Gives Business Leaders the Inside Track

**With the 2012 presidential election** in full swing, the U.S. economy is front and center among the issues. This much is certain: Whoever wins will be pressured to make big decisions about economic policy—and fast.

Business leaders in Oregon can get the inside track on what it all means to them at the upcoming Oregon Economic Forum (OEF), an annual UO endeavor that has long provided crucial economic forecasts. The OEF will convene again October 11. This year's topic: what the presidential election means for the economy in 2013 and beyond.

With President Obama and Republican opponent Mitt Romney staking out opposing views on taxes and spending, the winner of the election “could really shape some significant policy decisions very quickly,” said Tim Duy (right), a UO economist who serves as OEF senior director and is an expert in national, regional and global economies.

Presented by the UO College of Arts and Sciences and its Department of Economics, the OEF is a showcase for faculty-generated reports on regional and statewide economic indicators. The ever-available Duy is also on speed-dial for reporters seeking to make sense of economic trends on deadline, year-round.

“In some sense, the recession helped build momentum for the forum,” Duy said. “It made people much more aware of the relationship between Oregon and the national cycle.”

When Duy dreamed up the OEF ten years ago, he wanted to bring the UO's expertise in forecasting to a public venue where collective wisdom on economic issues could be explored. He envisioned that each forum would focus on individual topics such as transportation or health care, and that's the pattern that he followed for years.

Then came the recession. Duy was well ahead of the economic crisis that started in September 2008; in the months preceding and following the economic meltdown, he was quoted in dozens of media stories,

from the *Register-Guard* and the *Oregonian* to the *Washington Post*, correctly predicting the financial turmoil ahead.

Recognizing that the national economy dictates the situation in Oregon, Duy changed the forum's direction to maximize its impact. He did away with the focus on individual economic topics and began presenting a range of national and state economic trends.

It's been an eye-opener for forum crowds, which typically include more than 300 leaders from finance, business, the university system and state agencies. The national data has helped attendees understand how U.S. and international trends reverberate across the state.

“People in Oregon did not entirely appreciate that Oregon was really just a small ship in a large global ocean of economic activity,” Duy said. “These external events are critical in driving the patterns of our local economy.”

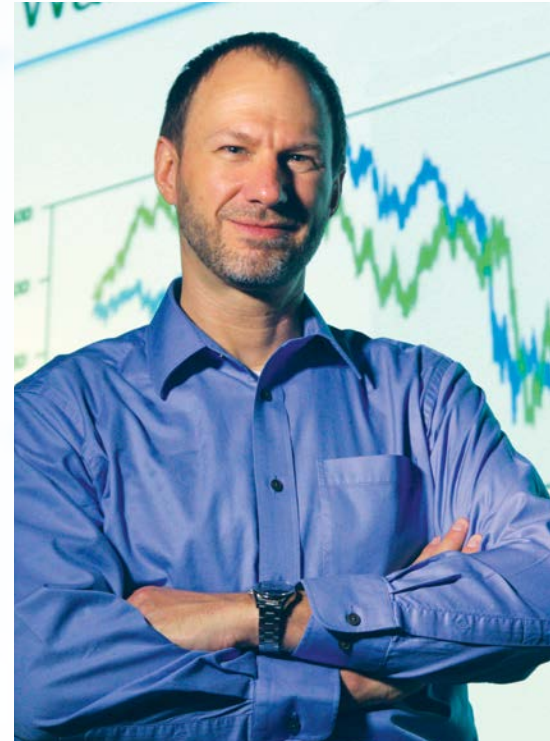
Attendees say the OEF is a reliable resource in volatile economic times because it provides information free from political spin—especially useful in an election year.

This year's keynote speaker is Bruce Bartlett, an economic policy expert and author. Bartlett, who contributes to a weekly economics blog at the *New York Times* and writes regularly for the *Financial Times*, often focuses on the intersection between politics and economics.

UO economists Bruce McGough and Nicolas Sly will discuss current conditions and Duy will provide his annual economic review and preview. The lineup also includes Brad DeLong, an economics professor at the University of California at Berkeley, whose keynote speech on the European crisis was a highlight of last year's forum, Duy said.

State economist Mark McMullen said the state's economic and revenue forecasts are supported by data provided by Duy and the nationally renowned speakers at the forum conference.

“Often, the reporting of economic



**The national data has helped attendees understand how U.S. and international trends reverberate across the state.**

conditions gets drawn into public debate and the data gets misused or misrepresented,” McMullen said. “Duy is able to bring in some economists we typically don't get up in this corner of the world. Everyone puts down the axes they're grinding for a day, given the stature of the folks that are talking.”

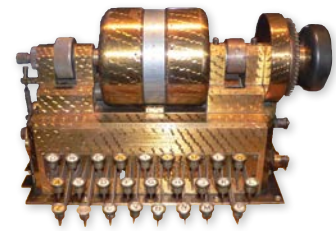
Brian Rice, president of the Oregon and southwest Washington district for KeyBank, a forum sponsor, said the forum has made a big splash with the addition of economic indicators that are tailor-made for markets such as Bend and Medford.

“With all of the economic noise, businesses are trying to assess the landscape and make sound decisions on whether to expand and grow or hunker down,” Rice said. “Businesses can use the forum information to make informed decisions in their communities.” —MC

# Natural Sciences

## Code Cracking, Then and Now

### *New Cryptography Course Explores Internet Data Protection*



**T**he Battle of the Atlantic was the longest continuous military campaign of World War II, running six years through Germany's defeat in 1945 and claiming more than 100,000 lives.

It might have stretched on even longer without the work of British code breakers, including the famous Alan Turing.

The German navy used cryptography to encode messages between submarines seeking to enforce a blockade of the United Kingdom. But Turing—a founding father of computer science—and other cryptanalysts cracked the code, enabling safe passage for merchant ships and helping hasten the war's end.

"The minimal estimate by historians is that British cryptanalytic work shortened the war by at least two years," said Eugene Luks, head of the Department of Computer and Information Science at the UO. "A less conservative appraisal is that it was the key to victory."

Luks' department has long recognized the historical importance of cryptography in course offerings and research. Now the Department of Mathematics is teaching cryptography, too—an acknowledgment of the ubiquity of this security measure in the Internet age.

A new math course, The Mathematics of Cryptography, based on the numerical concepts underpinning cryptography, explores the basic cryptosystems used in most Internet communication.

"The mathematics involved is both elegant and interesting," said Hal Sadofsky, head of the Department of Mathematics. "One of the fascinating things about cryptography is that it uses number theory in an essential way."

In computer and information science,



**"The mathematics involved is both elegant and interesting."**

cryptography course work includes two classes taught by Luks: a 400-level course and a freshman seminar, both of which cover WWII code-breaking efforts.

The department is also experimenting with 400- and 500-level courses, aiming to establish a permanent offering. The math department's entry into the world of cryptography adds another dimension for students.

"Mathematics had been critically applied in pre-Internet cryptography, and much modern cryptography applies number theory as well as other branches of mathematics," Luks said. "We were delighted to see the mathematics department add the course."

The math course, a standard offering taught for the first time last fall, covers finite field arithmetic, the discrete logarithm problem, Monte Carlo methods for generation of large prime numbers and techniques for factorization of large integers.

While this might sound like a daunting array of concepts, the real-world applications of cryptography make the topic easier for students to grasp, said Dan Dugger, an associate professor of mathematics who was instrumental in launching the course.

Dugger has been pushing the

department to add math courses that are relevant for other majors, and he believes there is broad interest among students who enjoy math simply for math's sake. Fifteen students took the course last fall, including some who are majoring in biology or physics.

"A lot of students have seen number theory or algorithms, but it doesn't stick in your brain the first time around," Dugger said. "It's the same way with anything—if you're learning

an abstract concept, you don't necessarily engage with it fully. If you're learning it for a reason, you can engage with it in a more solid way."

In the online world, encrypted data is only as secure as the complicated mathematical algorithms that act as "keys" for two parties in communication—say, you and your bank. If a third party can solve the math equation, the code is broken.

During the first third of the course, students learn techniques for public-key cryptography, which requires the production of large prime numbers, about 300 digits long. Dugger next explores the computationally difficult problem of factorization of huge numbers that are not prime, as this is believed to be the only way the codes can be broken. The final third of the syllabus is left to the instructor's discretion; Dugger covered the basics of quantum computation.

Junior Travis Scholl, a math major who is considering careers in cryptography, said he enjoyed putting into practice algorithms and other concepts that heretofore had resided only in textbooks and lectures.

"I really enjoyed the end where we studied quantum cryptography," Scholl said. "It made me want to go more in-depth into the subject." —MC

# Math as the Path to Female Faculty Frontiers

**For Stephanie Majewski and Shabnam Akhtari**, the love of mathematics began in grade school.

Majewski remembers enjoying after-school math programs. Akhtari realized in elementary school that arithmetic “seemed very natural and easy.”

Now these women are taking the math they embraced as children in uncommon directions as new faculty members at the UO.

Both will be joining departments—physics and mathematics, respectively—where tenured female faculty members are somewhat of a rarity. These two fields (unlike biology and chemistry, where great strides have been made) have the greatest underrepresentation of women—across the nation and around the world.

To underscore the UO’s commitment to bringing these women on board, both received supplemental funding through the university’s Underrepresented Minority Recruitment Program, designed to increase faculty diversity. This is the first time this fund has been used to recruit women into male-dominated disciplines.



**Shabnam Akhtari**, who will join the math department in September, specializes in number theory and related fields. The only tenure-track female in math, she arrives from

Montreal, where she was a postdoctoral fellow with the University of Montreal and McGill University.

A native of Esfahan, Iran, the country’s third-largest city, Akhtari credits her homeland for a strong undergraduate education. But she chose the University of British Columbia for her PhD because she sought a more rigorous environment for upper-level studies.

**Akhtari’s specialty involves problems that can be “fiendishly difficult” to resolve.**

“We get very, very good teachers (in Iran),” Akhtari said. “But for various reasons researchers leave the country.”

Akhtari also brings experience as a postdoctoral fellow from the Max Planck

Institute in Bonn, Germany, and Queen’s University in Kingston, Canada.

Akhtari’s specialty—Diophantine analysis and the geometry of numbers—is “a very old branch of mathematics,” she said, and it requires competence in multiple areas.

Department head Hal Sadofsky described Akhtari’s area of expertise as one in which seemingly elementary problems can be “fiendishly difficult” to resolve.

Akhtari’s work “is part of classical number theory, an area that our department has not been strong in for many years,” Sadofsky said.



**Stephanie Majewski**, who joins the physics department in December, is currently in Switzerland collecting data from the Large Hadron Collider (LHC). After that,

she will split her time between Eugene and Geneva, where UO researchers and thousands of other scientists are teaming up at the LHC to test some of the fundamental theories of particle and high-energy physics.

Majewski is on the hunt for supersymmetric particles, using the

**Majewski is on the hunt for supersymmetric particles, using the world’s most powerful particle accelerator.**

world’s most powerful particle accelerator to smash protons together and unlock discoveries about the physical universe and concepts such as dark matter. But if that sounds like the makings of a Hollywood disaster movie, you’ve been spending too much time in a theater.

“Cosmic rays have been striking the atmosphere and showering us with a lot higher energy than what we’re doing in the laboratory,” she said.

Majewski, who earned her PhD in applied physics from Stanford, is the second tenure-track woman in the department, joining Miriam Deutsch, who studies experimental optical physics.

“Stephanie is an excellent scientist and a very outgoing person, very interested in teaching and outreach,” physics professor James Brau said. “She is going to be a terrific colleague.”

Majewski was a viola performance major as an undergraduate at the University of Illinois. But her desire to understand things “at the most basic level,” she said, prompted her to pursue particle physics instead.

The LHC is the cutting edge for particle physics research because it could enable scientists to create and study dark matter. Dark matter is hypothesized to account for a large part of total mass in the universe but it is not visible with telescopes.

This fall Majewski concludes another yearlong period of intensive data collection in the search for a particle called the “stop.”

“We’re connecting different fields of physics, answering a bigger question than just something specific to particle physics,” she said. “This is a very global question.”

—MC

# Competing Stakeholders Look Forward to Estuary Model



SOUTH SLOUGH NATIONAL ESTUARINE RESEARCH RESERVE

**There are a lot of eyes** on the Coos estuary.

This elongated series of sloughs and tidewater streams makes Charleston the biggest Dungeness crab port on the West Coast. The Port of Coos Bay plans to widen the commercial shipping channel to increase business, while the state wants to

protect water quality. The estuary—one of the largest within Oregon—is important to recreationists, researchers and Indian tribes, as well.

David Sutherland, an oceanographer in the UO Department of Geological Sciences, is also focused on the estuary. His research may ultimately support decision-making that seeks to balance competing interests.

Sutherland is developing a computer model of flows, temperature and salinity in the estuary. Once he's finished, the public will have a hydrodynamic tool that can be used to investigate a variety of scenarios for the estuary, including the ways in which natural and man-made changes affect this important environmental, cultural and socioeconomic asset.

The Coos estuary project, Sutherland said, "is neat because there are so many stakeholders and it's a great place for students to learn."

Estuaries are areas where a river meets an ocean. The Coos estuary provides unique opportunities and challenges in Oregon, said Pam Blake, South Coast Basin coordinator for the Oregon Department of Environmental Quality. The estuary is accessible to large ships, and a variety of development proposals seek to capitalize on this asset.

"On the coast of Oregon, Coos Bay is a hot spot of economic opportunity as well as rich and diverse natural resources," Blake said.

Blake called Sutherland's estuary model "absolutely critical" because it will allow DEQ to track how pollutants move through the estuary and where they collect. The model could also help the local economy, she added, by helping to identify areas where development can occur while minimizing the damage to natural resources.

Representatives of another project partner, the South Slough National

# Seeking Interventions, Both On and Off the Battlefield

**The UO is helping the Department of Defense (DOD)** protect our soldiers.

Consider the physiological risks on the battlefield: Improvised explosive devices that cause concussive brain dysfunctions; combat engagements that bring knee and shoulder injuries or failures of the cardiovascular system; even acute mountain sickness and problems associated with extremely hot climates.

Researchers in the Department of



MICHAEL MCDERMOTT

Human Physiology regularly break new ground in those areas. And they do it with equipment paid for by the defense department, which anticipates real-world applications for the scientists' work, both on and off the battlefield.

"A lot of the things we're studying have a nice linkage to the sorts of problems our soldiers face," said professor John Halliwill (left), who studies the ways cardiovascular and respiratory systems adapt to exercise and other stresses.

In the last two years alone, the defense department has funded equipment that allows UO researchers to track circulation in the arteries and measure cerebral blood flow and oxygenation, all in a noninvasive

way while the subject is exercising to the point of exhaustion.

The defense department regularly awards tens of millions of dollars to universities such as the UO to buy equipment that helps the U.S. sustain a technological advantage. That equipment and the education it supports attract students who will become future DOD researchers and engineers, said Zachary Lemnios, assistant secretary of defense for research and engineering.

But the defense department is also interested in UO research that applies

**A noninvasive device records what happens in the brain at the point fainting occurs.**



Estuarine Research Reserve in Charleston, said the model will allow for precise assessments of water quality in the estuary. That might allow officials to refine restrictions on harvesting periods for commercial oyster growers, who aren't allowed to operate when high levels of bacteria are suspected to be in the water.

"The model is of great interest to conservationists and developers alike, who understand that model results may or may not support what they want to do," said Craig Cornu of the South Slough Reserve.

Working from a boat in the estuary, Sutherland receives most data for the estuary model through stainless-steel cylinders called CTD sensors, which are submerged to measure the water's conductivity (or saline content), temperature and depth.

Sutherland began the project last fall and could have a working model next year—but only if additional funding is obtained and everyone with a stake in the estuary is satisfied with the accuracy of his model.

Laura Peteiro, a researcher with the UO's Charleston-based Oregon Institute of Marine Biology, said the project could aid the Olympia oyster, which is threatened but could be commercially

**"There have been hydrodynamic models for the Coos estuary but they were not designed to be turned over to the community to use."**

harvested if populations increase.

She said the model, by zeroing in on estuary dynamics such as current speed and man-made dredging, "will help to predict how variations in the estuary can affect the population."

The Coos tribe relies on the estuary's salmon and shellfish as staple foods; preserving them is important to their cultural heritage, said Howard Crombie, director of the Department of Natural Resources for the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians. The department monitors water quality with equipment that collects readings every thirty minutes.

"While we have a piece of the puzzle, and others studying the estuary have

other pieces of the puzzle, Sutherland's project will help show how our piece and all the other pieces relate to one another," Crombie said.

Like the Coos, the Coquille tribe also relies on the estuary for cultural resources and monitors water quality there.

"Sutherland's model will hopefully provide valuable information for planners, developers and long-term conservation and restoration efforts," said Jason Robison, biological and environmental services coordinator for the Coquille.

The ability to fit the estuary model to specific needs is also a strong selling point for Jon Souder, executive director of the Coos Watershed Association. The group wants to use the tool for wetland restoration and water quality projects.

"There have been hydrodynamic models for the Coos estuary but they were not designed to be turned over to the community to use," Souder said. "(Sutherland's model) is really a fundamental building block for a lot of other analysis that we would like to do."

Said Sutherland: "It's a little daunting. You want to do it right." —MC

*Read about a geographer's research into liquid natural gas in Coos Bay on p. 22.*

directly to military personnel.

Assistant professor Hans Dreyer, for example, studies skeletal muscle metabolism and function before, during and after knee surgery, as well as the influence of interventions on recovery. With defense department funding, the human physiology department purchased two near infrared, noninvasive tissue spectrometers that he uses to measure the effects of different treatments on muscle tissue.

"Dreyer's research deals with knee surgeries that are common following combat or training injuries and can lead to long-term disability induced by military service and, thus, should be of interest to the DOD," the university said, in applying for the funding.

In a recent demonstration in Halliwill's lab, graduate student Alisha Lacewell (right) used a headband to attach the

sensors of a tissue spectrometer to the forehead of UO junior Emily Zoltai. Zoltai's task was simple: Pedal on a stationary bike as fast as possible for sixty seconds while researchers tracked blood flow to her brain.

The equipment measures cerebral tissue oxygenation, which traditionally has been assessed by inserting a catheter into an artery or vein. Halliwill uses this noninvasive device to record what happens in the brain during recovery from exercise at the point fainting occurs—critical for testing countermeasures to passing out.

Each test ends just prior to the loss of consciousness, with Halliwill and support staff members closely monitoring the test subject's status.

Going full-tilt for nearly a minute, "it feels like you're pedaling through molasses," Zoltai said afterward. "The first time I felt kind of awful but the second



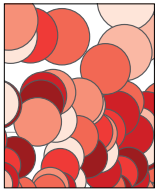
*Alisha Lacewell prepares Emily Zoltai for a test that will involve pedaling a stationary bike at maximum speed for sixty seconds.*

time I was fine."

Said Halliwill: "We stop the test before they actually faint. It can be a little nerve-racking when you see the symptoms starting to develop." —MC

# Online Extras

[cascade.uoregon.edu](http://cascade.uoregon.edu)



**VISUALIZE THIS:** How many total commuters are there in your home state, and how many of them commute by bicycle? How does your state compare to others in terms of bicycle fatalities? Visit Online Extras at [cascade.uoregon.edu](http://cascade.uoregon.edu) to get an in-depth look at Kory Northrup's innovative visualizations of bicycle commuting data, and you can also try out Derek Watkins's interactive world population map.



**MUSIC TO YOUR EARS:** Carol Silverman's research into Romani music includes extensive video recordings of Romani weddings and other celebrations, where music and dancing are integral to the festivities. Visit [cascade.uoregon.edu](http://cascade.uoregon.edu) to hear and see Romani musical performances.



**THE CHEMIST'S FORMULA:** "Making good wine is a skill. Fine wine is an art." So said Robert Mondavi, a pioneer in the wine industry. But exceptional wines and beers owe as much to skill as they do to a flair for creativity, according to a UO biochemist and two chemistry alumni who are applying their scientific skills to the art of homebrew and winemaking. Read this online-only story at [cascade.uoregon.edu](http://cascade.uoregon.edu).



**GRAND OPENING:** What happens when you bring world-class faculty members together from diverse disciplines to tackle society's great challenges? Scientists in the new Robert and Beverly Lewis Integrative Science Building (LISB)—the only LEED Platinum Certified building on campus—will be a part of that grand experiment when LISB opens next month. Learn more at [cascade.uoregon.edu](http://cascade.uoregon.edu).



**TANGO, TOO:** You haven't danced the tango until you've danced it deep into the night in the milongas of Argentina. So says cinema studies professor Kathleen Karlyn, whose work abroad has also allowed her to pursue a passion for the South American dance form. In our Online Extras video interview, Karlyn describes the sights, sounds and sensuousness of dancing tango in the festive clubs of Argentina.



**KUDOS:** Biologist Eric Selker has been elected to the National Academy of Sciences and geologist Kathy Cashman has been named a fellow of the American Academy of Arts and Sciences. These prestigious honors round out a year when more than 400 awards were bestowed on College of Arts and Sciences faculty members, students and staff employees.



**FORCED TO FLEE:** Anthropologist Stephen Wooten has been doing research in Mali for twenty years. Last spring, the normally peaceful country underwent a coup d'état and Wooten was forced to flee with his family. Visit [cascade.uoregon.edu](http://cascade.uoregon.edu) to read an *Oregon Quarterly* interview and listen to a KLCC audio interview, which capture Wooten's experience as an eyewitness to the upheaval and an admirer of the country.

# CAS Social Media Directory

All College of Arts and Sciences departments have websites and many also offer social media connections for students, faculty members, alumni and friends. Below is a current listing of CAS social media connections. A continually updated directory will be maintained on the College of Arts and Sciences home page, [cas.uoregon.edu](http://cas.uoregon.edu)—where you can also click through to all of the links below, rather than typing them in.

## College of Arts and Sciences

**f** Facebook: [facebook.com/UOCAS](https://www.facebook.com/UOCAS)

## African Studies

**f** Facebook: [facebook.com/groups/317163184641/](https://www.facebook.com/groups/317163184641/)

## American English Institute

**f** Facebook: [facebook.com/AmericanEnglishInstituteUniversityofOregon](https://www.facebook.com/AmericanEnglishInstituteUniversityofOregon)

**t** Twitter: [twitter.com/UO\\_AEI](https://twitter.com/UO_AEI)

**in** LinkedIn: [linkedin.com/pub/uo-american-english-institute/4b/b11/120](https://www.linkedin.com/pub/uo-american-english-institute/4b/b11/120)

## Biology

**f** Facebook: [facebook.com/UOBiology?v=wall](https://www.facebook.com/UOBiology?v=wall)

**t** Twitter (Jessica Green): [twitter.com/#!/JessicaLeeGreen](https://twitter.com/#!/JessicaLeeGreen)

**t** Twitter (Brendan Bohannon): [twitter.com/#!/DrMicrob](https://twitter.com/#!/DrMicrob)

**Blog** (Jessica Green): [biobe.uoregon.edu](http://biobe.uoregon.edu)

**Blog** (Brendan Bohannon): [amazonmicrobes.org](http://amazonmicrobes.org)

**Blog** (Graduate Evolutionary Biology and Ecology Students): [grebesuo.wordpress.com](http://grebesuo.wordpress.com)

**Blog** (Tobias Policha—graduate student): [tobiaspolicha.blogspot.com/](http://tobiaspolicha.blogspot.com/)

## Chemistry

**f** Facebook: [facebook.com/pages/University-of-Oregon-Department-of-Chemistry/146835772024689](https://www.facebook.com/pages/University-of-Oregon-Department-of-Chemistry/146835772024689)

## Cinema Studies

**f** Facebook: [facebook.com/UOCinema](https://www.facebook.com/UOCinema)

**t** Twitter: [twitter.com/#!/UOCinema](https://twitter.com/#!/UOCinema)

**t** Twitter (Mike Aronson): [twitter.com/#!/MichaelAronson](https://twitter.com/#!/MichaelAronson)

**Tumblr**: [cinemastudiesuo.tumblr.com/](http://cinemastudiesuo.tumblr.com/)

## College Scholars

**f** Facebook: [facebook.com/#!/pages/College-Scholars-University-of-Oregon/143726542375503](https://www.facebook.com/#!/pages/College-Scholars-University-of-Oregon/143726542375503)

## Comparative Literature

**f** Facebook: [facebook.com/UOCompLit](https://www.facebook.com/UOCompLit)

**t** Twitter: [twitter.com/#!/@UOComLit](https://twitter.com/#!/@UOComLit)

## Computer and Information Science

**f** Facebook: [facebook.com/pages/University-of-Oregon-Department-of-Computer-and-Information-Science-40th-Anniversary/182476712745](https://www.facebook.com/pages/University-of-Oregon-Department-of-Computer-and-Information-Science-40th-Anniversary/182476712745)

## Economics

**Blog** (Tim Duy): [economistsview.typepad.com/timduy/](http://economistsview.typepad.com/timduy/)

**Blog** (Mark Thoma): [economistsview.typepad.com/economistsview/](http://economistsview.typepad.com/economistsview/)

## Environmental Studies

**f** Facebook: [facebook.com/UOENVS](https://www.facebook.com/UOENVS)

**f** Facebook (peer advisors): [facebook.com/ecopeers](https://www.facebook.com/ecopeers)

## Ethnic Studies

**f** Facebook: [facebook.com/UOEthnicStudiesDept](https://www.facebook.com/UOEthnicStudiesDept)

## Geological Sciences

**f** Facebook (undergraduate geology club): [www.facebook.com/pages/University-of-Oregon-Geology-Club/242043502518933](https://www.facebook.com/pages/University-of-Oregon-Geology-Club/242043502518933)

**Blog** (Marli Miller, instructor): [geologictimepics.com/](http://geologictimepics.com/)

**Blog** (Katie Marks, graduate student): [volcanicventures.wordpress.com/](http://volcanicventures.wordpress.com/)

## History

**f** Facebook (UO History Association): [facebook.com/groups/121773534601532/](https://www.facebook.com/groups/121773534601532/)

## Human Physiology

**f** Facebook: [facebook.com/hphypeers](https://www.facebook.com/hphypeers)

**Blog**: [uohphy.wordpress.com](http://uohphy.wordpress.com)

## International Studies

**f** Facebook: [facebook.com/pages/University-of-Oregon-International-Studies/147182298657567](https://www.facebook.com/pages/University-of-Oregon-International-Studies/147182298657567)

## Oregon Institute of Marine Biology

**f** Facebook: [facebook.com/UOOIMB](https://www.facebook.com/UOOIMB)

## Philosophy

**f** Facebook (*Environmental Philosophy Journal*): [facebook.com/pages/Environmental-Philosophy-Journal/173483132677098](https://www.facebook.com/pages/Environmental-Philosophy-Journal/173483132677098)

**Blog** (Colin Koopman): [cwkoopman.wordpress.com](http://cwkoopman.wordpress.com)

**Blog** (Mallard—Undergraduate Philosophy Club): [uophilosophyclub.blogspot.com/](http://uophilosophyclub.blogspot.com/)

**Blog** (Blogos, the graduate philosophy blog): [oregonphilosophyblog.wordpress.com/](http://oregonphilosophyblog.wordpress.com/)

## Physics

**Blog** (Stephen Hsu): [infoproc.blogspot.com/](http://infoproc.blogspot.com/)

## Psychology

**f** Facebook: [facebook.com/uopsychology](https://www.facebook.com/uopsychology)

**Blog** (Sanjay Srivastava): [hardsci.wordpress.com/](http://hardsci.wordpress.com/)

## Russian, East European and Eurasian Studies

**f** Facebook: [facebook.com/pages/Russian-and-East-European-Studies-at-the-University-of-Oregon/166591626703376](https://www.facebook.com/pages/Russian-and-East-European-Studies-at-the-University-of-Oregon/166591626703376)

## Romance Languages

**f** Facebook: [facebook.com/uoromance](https://www.facebook.com/uoromance)

**f** Facebook: [facebook.com/medieval.iberia](https://www.facebook.com/medieval.iberia)

**t** Twitter: [twitter.com/#!/uoromance](https://twitter.com/#!/uoromance)

**t** Twitter (David Wacks): [twitter.com/#!/search/davidwacks](https://twitter.com/#!/search/davidwacks)

**Blog** (David Wacks): [davidwacks.uoregon.edu/](http://davidwacks.uoregon.edu/)

**Blog** (Amalia Gladhar): [gladhartranslation.blogspot.com/](http://gladhartranslation.blogspot.com/)

## Sociology

**f** Facebook: [facebook.com/pages/University-of-Oregon-Sociology-Department/173215078170?ref=ts](https://www.facebook.com/pages/University-of-Oregon-Sociology-Department/173215078170?ref=ts)

## Theater Arts

**f** Facebook (Department): [facebook.com/#!/pages/University-of-Oregon-Department-of-Theatre-Arts/132226803485065](https://www.facebook.com/#!/pages/University-of-Oregon-Department-of-Theatre-Arts/132226803485065)

**f** Facebook (University Theatre): [facebook.com/#!/uouniversitytheatre](https://www.facebook.com/#!/uouniversitytheatre)

**t** Twitter: [twitter.com/#!/search/%40UOTheatreArts](https://twitter.com/#!/search/%40UOTheatreArts)

## Women's and Gender Studies

**f** Facebook: [facebook.com/UOWGSDept#](https://www.facebook.com/UOWGSDept#)

## Yamada Language Center

**f** Facebook: [facebook.com/YamadaLanguageCenter](https://www.facebook.com/YamadaLanguageCenter)

# CAS Degrees

(Excluding certificates, minors, and specializations)

- Anthropology BA, BS, MA, MS, PHD
- Applied physics MS
- Asian studies BA, MA
- Biochemistry BA, BS
- Biology BA, BS, MA, MS, PHD
- Chemistry BA, BS, MA, MS, PHD
- Chinese BA
- Cinema studies BA
- Classics BA, MA
- Comparative literature BA, MA, PHD
- Computer and information science BA, BS, MA MS, PHD
- Creative writing MFA
- East Asian languages and literatures MA, PHD
- Economics BA, BS, MA, MS, PHD
- English BA, MA, PHD
- Environmental science BA, BS
- Environmental sciences, studies, and policy PHD
- Environmental studies BA, BS, MA, MS
- Ethnic studies BA, BS
- Folklore BA, MA, MS
- French BA, MA
- General science BA, BS
- General social science BA, BS
- Geography BA, BS, MA, MS, PHD
- Geological sciences BA, BS, MA, MS, PHD
- German BA, MA, PHD
- History BA, BS, MA, PHD
- Humanities BA
- Human physiology BA, BS, MS, PHD
- International studies BA, BS, MA
- Italian BA, MA
- Japanese BA
- Judaic studies BA
- Latin American studies BA
- Linguistics BA, MA, PHD
- Marine biology BA, BS
- Mathematics BA, BS, MA, MS, PHD
- Mathematics and computer science BA, BS
- Medieval studies BA
- Philosophy BA, BS, MA, PHD
- Physics BA, BS, MA, MS, PHD
- Political science BA, BS, MA, MS, PHD
- Psychology BA, BS, MA, MS, PHD
- Religious studies BA, BS
- Romance languages BA, MA, PHD
- Russian and East European studies BA, MA
- Sociology BA, BS, MA, MS, PHD
- Spanish BA, MA
- Theater arts BA, BS, MA, MS, MFA, PHD
- Women's and gender studies BA, BS



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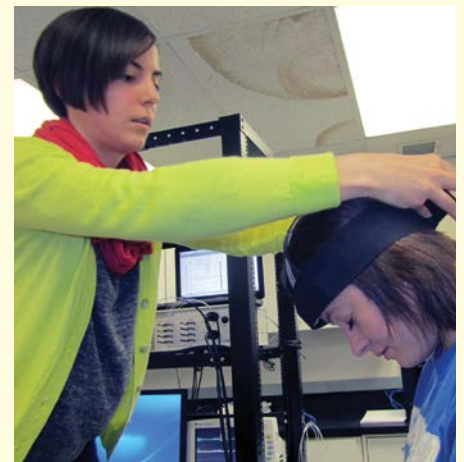
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