

A+

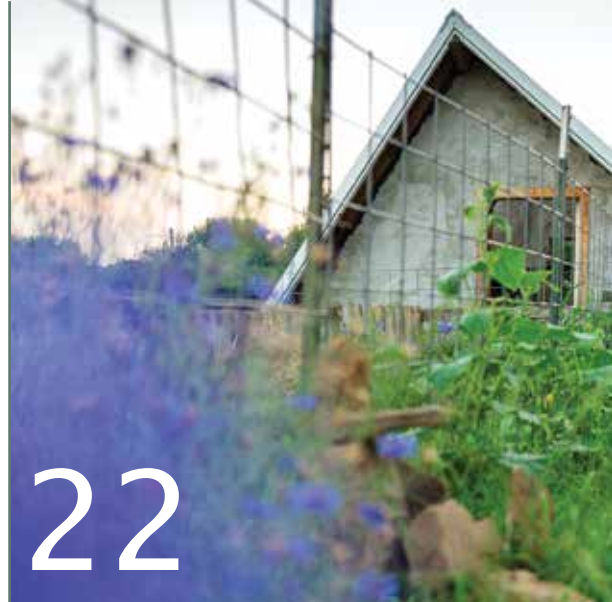
THE HONORS COLLEGE  
2014



UNIVERSITY OF  
ARKANSAS



7



22



28



36

### *Honors College Invites: Shannon Sanders*

Honors alumna Shannon Sanders ('09) crisscrosses the globe shooting video documentaries for *National Geographic*. Next spring she returns to campus to share her work -- and you're invited. See p. 7.

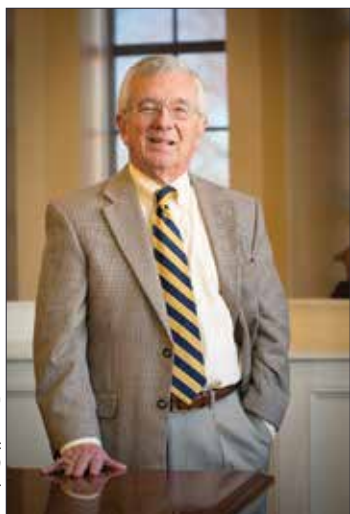
### *Game On*

Five honors athletes make the grades and score their goals thanks to a 24/7 commitment to studying and sports, with occasional breaks to chill. Shelby Gill ('14) reports, p. 14.

### *Field Notes*

Read up on a low-cost, no-frills water purification system powered by pedaling, a new training tool that kept the Razorback basketball team injury-free, and chocolate that may help you fight fat. These honors student research stories and more, pp. 20-26.

- 2 Dean's List
- 8 On Campus  
*McMath, Lynes Retire*
- 11 Pop Quiz
- 13 Class Notes  
*Coloring Outside the Lines*
- 27 Honor Roll  
*New Path to Success*
- 29 Alumni Updates
- 36 Lab Notes  
*Shining a Light on Cancer Detection*



Russell Cottrien

The amazing impact of the Honors College in its first 12 years has been the work of many hands. Here are a few examples:

- + **Honors recruitment:** We recruit and retain high-ability students from Arkansas and elsewhere – and those students raise the academic bar in classrooms across campus. The number of new freshmen honors students has grown 45% since the Honors College was established, and the number of all freshmen entering the UA who are honors eligible has grown by more than 40% in the last five years.
- + **Undergraduate research:** Research is part of our DNA – all honors students complete original research or creative work before they graduate, and we support their research with competitively awarded grants. Our honors students and their faculty mentors have invigorated undergraduate research across campus (for a sampling, see pp. 20-26).
- + **Study abroad:** Over the past 10 years, we have awarded more than \$3.5 million in study abroad grants, making it possible for more than 1100 honors students to learn new languages and expand their perspective, preparing them for success in today's global economy. More than half of our honors students study abroad, and participation in study abroad by all UA students has more than doubled since the Honors College was established.
- + **Reputation building:** Thanks to ongoing faculty and staff support and a deep pool of talented honors students, the UA continues its stellar track record of winning nationally competitive awards, ranking 13th in the nation for Truman Scholars, to take just one example (see p. 28 for this year's award winners,

including our newest Truman scholar, Cicely Shannon).

- + **Graduation rates:** Bringing high-achieving students to campus is an important first step, but the ultimate measure of success is reflected in U of A retention and graduation rates. The latest figures for six-year graduation rates show that students who become involved in honors have a 30% higher graduation rate than students who don't.
- + **Cutting edge courses:** To date, the Honors College has helped to develop 30 interdisciplinary courses with more than \$500,000 in start up funding, on topics ranging from the drug development process to music, language and thought. Innovative courses and curricular options like the new sustainability minor we helped launch prepare our students to lead wisely in society and in the global marketplace.
- + **What's next:** Building on the pioneering efforts of honors students and professors (see p. 20 for just one example), the Honors College is working with colleges across campus to develop programs that will offer all undergraduates opportunities to engage in service learning and social entrepreneurship.

Maribeth Lynes and I are leaving the Honors College in good hands, and we can't wait to see the great things that are to come, both in the Honors College and in the lives of the students and alumni we've had the honor to work with during our time here.

*Bob McMath*

Bob McMath  
Dean of the Honors College and  
Professor of History





Gaby Abraham and Aaron Crowell visit in the Honors Student Lounge.  
Below: Terrance Boyd (right) leads a group in the Hogwarts anthem  
at the Honours College School of Witchcraft and Wizardry.

Stephen Ironside

## *From Hogwarts to House Concerts*

**B**uild beautiful new facilities, hire some creative graduate students, brainstorm ideas, press go. This past year, the Honors College more than doubled the number of programs, offering 35 events that drew 1,005 honors students, from nervous freshmen to seniors considering their next steps. “It was a year for experimentation,” said Noah Pittman, assistant dean for recruitment and retention. “Our big goal was to get students acquainted with both of our new buildings, and to offer events where they get involved with faculty and staff – and to be creative about it.”

Ozark Hall and the freshly renovated Hotz Hall set the stage for programs ranging from pre-health and pre-law interest dinners with professors to purely fun events to blow off steam, such as a Murder Mystery Dinner theater that brought together honors staff and students to solve “whodunit.” (The Prime Minister— aka Dean McMath – was caught red handed.) One program that will return for sure: the wildly popular Honours College School of

*Our big goal was to get students acquainted with both of our new buildings, and to offer events where they get involved with faculty and staff – and to be creative about it.*

— NOAH PITTMAN  
assistant dean for recruitment and retention



Logan Webster

Programs continued on page 4





Logan Webster



Logan Webster



Katie Wilson

Witchcraft and Wizardry, attended by 90 students decked out in Harry Potter regalia, with law professor Steve Sheppard making a cameo appearance as Dumbledore.

Popular programs from Pomfret, such as Trivia Night and the annual Dead Day Gingerbread House Competition, live on in Hotz, and have been supplemented with new programs such as the Professor and Pizza on the Patio series, which sparked lively discussions on topics ranging from ballroom dancing to “Sustainability and Future Earth.”

Alumni dropped by to share their experiences, as well. Rachel Fiori (B.A. in classical studies, *magna cum laude*, '04), now practicing psychiatry in Ft. Smith, shared insights on her challenging work in the mental health field at a dinner discussion, and Phillip Cleves (B.S. in biology, *summa cum laude*, '08) led a lunchtime discussion about how the Goldwater Award and his honors courses and thesis prepared him for his doctoral studies in genetics at Berkeley.

“A lot of our students experience



Noah Pittman

Clockwise from bottom: Jack Mayner works on a tessellated hog mural for Hotz Hall; Professor Fiona Davis leads a discussion on Scottish politics at Hotz; Latino Scholars Day brought top students to campus; Nina Simmons and Noah Pittman perform at the Murder Mystery dinner.



Clockwise from top: Law professor Steve Sheppard as Dumbledore; the "Pi Phi Loves Potter" team (l-r Brooke DeFrees, Jill Jeffrey, Courtney Weisell and Martha Claire Gresham) placed second; Ian Wicks, Nate Flannery and Manoj Seeram grab a bite at the end-of-year picnic; freshman pep rally at Hotz Honors Hall (H<sup>3</sup>).



Logan Webster



Logan Webster

some anxiety about how school will translate into the real world," Pittman said. "We hope to organize more events where alumni come and talk about what they're doing now, and how their honors experience helped them to prepare for their career."

In addition to student programming, the Honors College offers events open to all on campus and in the community. This fall, we'll host a house concert by the Boston Mountain Brassworks at 6 p.m. on Thursday, September 18 in Ozark Hall, and next spring alumna Shannon Sanders will give a behind-the-scenes glimpse of her work as a video producer for *National Geographic* (see p. 7). Watch for Honors College emails for updates! Alumni, interested in sharing your career path with current honors students? Please contact Noah Pittman at npittman@uark.edu.



Shelby Gill



Jocelyn Murphy





Shelby Gill

## *Margulis Shares ‘Miniatures and Transcriptions’* By Shelby Gill

Outside Ozark Hall, ominous clouds threatened; inside, the Honors Student Lounge was unrecognizable. Ranks of couches, armchairs, and metal foldable chairs replaced the usual quiet study spots, and in front of the fireplace, a sleek Steinway D concert grand piano gleamed in the low light. The crowd of 100+ students, faculty, staff and community members quieted to hushed expectation as Jura Margulis, an internationally acclaimed concert pianist, recording artist and master teacher, stepped forward to address them.

This special “house concert” with Margulis, who holds the Emily J. McAllister Endowed Professorship in Piano in Fulbright College, was the latest event in the Honors College Invites series, in which thinkers and doers share their craft with the campus and community.

Margulis introduced his concert, “Miniatures and Transcriptions,” with a talk about the pieces he was going to perform and an explanation of transcriptions, works that were originally composed as orchestral or ensemble pieces that have been adapted for solo piano.

“A transcription is like ‘love at first hear,’” Margulis said. “You hear something and you think, ‘I just want to play this on the piano.’”

Margulis noted that classical music today is “almost all from the past,” but music from the past was “almost all from the present.” Transcriptions provided a way for musicians to hear and enjoy music before recording technology was available. Today, they help to preserve the tradition of playing classical music and also foster the creation of new



Shelby Gill

*A transcription is like ‘love at first hear.’ You hear something and you think, ‘I just want to play this on the piano.’*

————— JURA MARGULIS  
concert pianist, recording artist and master teacher

interpretations of historic pieces.

The concert began promptly at 6 p.m., as Margulis returned to the stage, now clad in formal black tie and tails. With a crack of lightning from the burgeoning storm outside, the room quieted and Margulis launched into a compilation of 11 miniature movements from one of Robert Schumann’s last published collections, *Albumblätter Op.12*. He glided expertly between pieces, each representing a different emotion or event in Schuman’s life.

Margulis then moved on to the transcriptions portion of the program, beginning with the final chorus of Bach’s Baroque oratorio, the *St. Matthew Passion*, typically performed by an orchestra and two choirs. The diverse program also included works by Mozart and Puccini, and closed with Liszt’s *Mephisto Waltz* – a virtuoso end to the house concert.

## Honors College Invites: Shannon Sanders, Video Producer

By Bettina Lehovec

As a child in rural Arkansas, Shannon Sanders was enthralled with the *National Geographic* documentaries she was allowed to watch on rainy days. The Bodenhamer Fellow, who graduated in 2009, didn't know then she would one day work for the premiere science and educational institution, creating short-form documentaries of her own.

Sanders is a video producer for the digital editions of *National Geographic* magazine, a job she landed last June after serving a yearlong internship. Assignments have taken her from the pine forests of Canada to a brain science lab at Harvard, from the rim of the Grand Canyon to an innovative network of communicators in India.

Sanders is part of the burgeoning field of multimedia journalism, which combines audio and video elements with text and photos to tell a story. She works as a one-woman crew, shooting video and recording audio as she interviews her subjects, and then returning to the office to edit her work.

Her favorite project to date — and the most difficult — was about storm chaser Tim Samaras, killed in the El Reno tornado in Texas in May 2013. Shannon interviewed Samaras' colleagues across the U.S. and in Germany about his work and produced several video elements to complement the magazine's cover story last November.

"To get to tell that story was a large responsibility, but also very special to me," Sanders said by phone from her office in Washington, D.C. "It was an emotionally taxing story, but an honor to get to tell it."

Working for *National Geographic* is not always the glamorous job people envision, Sanders said. "People think you're in the jungle or on the Nile — something really exotic — but I'm usually closer to home."

Most of her stories focus on domestic issues, such as the Hunger in America series slated to go online in September 2014. Sanders produced stories in Iowa and Arkansas for her part of the series. The things she heard and saw were



Shannon Sanders shoots a report on pine beetles in Alberta, Canada.

Peter Essick

emotionally grueling, she said. "I cried on my way home every day."

Yet the work is deeply rewarding, even when the subject matter is tough. "I love all the stories I've done. Some are just more fun at the time than others."

Occasionally, Sanders teams with photographers in the field to produce video content from their work without going on site herself. She produced a richly textured piece featuring the sights and sounds of rural Transylvania to accompany a July 2013 story on the disappearing way of life in that country, for example.

Culture stories — whether in far-off locales or closer to home — are her specialty, Sanders said. She's been surprised to find that she enjoys science stories, such as her report on pine beetles in snowy Alberta, Canada, just as much.

Sanders credits the journalism department at the UA for giving her the skills to succeed in multimedia journalism. "Even though I left print journalism, the training I received absolutely informs my story telling and my journalism every single day. I'm still telling stories just like a writer only doing it with a camera instead."

Shannon Sanders will share her videos — and the stories behind them — in her campus lecture next spring, the latest in the Honors College Invites series. Join us!



Sean Gerrity

*Even though I left print journalism, the training I received absolutely informs my story telling and my journalism every single day. I'm still telling stories just like a writer only doing it with a camera instead.*

SHANNON SANDERS  
video producer



## McMath, Lynes Retire

As the Honors College settles into its new home and greets a new class of freshmen honors students to campus, we say a bittersweet goodbye to beloved members of the honors family, Bob McMath and Maribeth Lynes, who have recently retired.

### Founding Dean Built Strong Foundation

When Dean McMath first arrived on campus in 2005, he “hit the ground listening, and what I noticed about Bob is that he really *did* listen,” said Sidney Burris, director of the Fulbright Honors Program, at a reception honoring McMath last June. Thanks to McMath’s listening tours, open-door policy and responsive leadership, he succeeded in building strong ties between the new Honors College and faculty and administrators across campus, and with donors, educators and other key contacts off campus.

“The Honors College is truly the house that Bob McMath built,” said Provost Sharon Gabor. “While the Walton Gift provided the funding that made this college possible, Bob McMath was its true architect. He provided the vision and framework that’s made the college nationally prominent.”

Under McMath’s leadership, Honors College enrollment has almost doubled in size, with the average college GPA for honors students rising from 3.58 to 3.76. Honors students

continue to rack up an impressive tally of nationally competitive awards, and the Honors College was ranked 17th in “Overall Excellence” in the first national study of the top 50 public honors programs and ranked 3rd out of 50 in “Excellence Impact.”

McMath has put the university at the forefront of national trends by awarding more than \$500,000 in grants that provided seed funding for 30 interdisciplinary courses, on topics ranging from the digital recreation of ancient Roman cities to nanotechnology. McMath also shepherded the completion of a permanent home for the Honors College in the expanded Ozark Hall and the renovation of Hotz Hall as a well-appointed residence hall for honors freshmen. Beyond campus, he has taken a leading role in developing the SEC Honors Leaders group (see p. 10).

“This is not the work of any one individual – far from it,” Bob McMath was quick to say at the reception. “Together we have built an outstanding Honors College. I am proud to be a part of it.”

### Lynes Recruited the Best and Brightest

Maribeth Lynes helped launch the Honors College fellowship program shortly after the \$300 million Walton Gift was announced in 2002.





Matt Reynolds

“Nobody knew about the fellowships that first year,” Lynes recalled. “We contacted national merit finalists and other top test takers in the state. Our goal was to keep the best and brightest students in Arkansas.”

Today, the word is out on the generous funding that the Honors College provides to its students, in fellowships and grants, thanks to the efforts of Lynes and her recruiting team.

“Including this latest group, we have provided fellowships for more than 1,000 students over the past 12 years, and we’ve awarded close to \$7 million in research and study abroad grants since 2002. It’s incredibly rewarding to see them explore their interests, both on campus and abroad,” Lynes said.

In addition to recruiting top students, Lynes has worked to expand access to higher education in the region. As director of the Honors College’s annual Advanced Placement Summer Institute, a weeklong workshop focused on training AP teachers, she has helped to increase the number of AP-certified teachers and expand AP course offerings throughout the southwest region. AP courses are one of the best ways to prepare students for university studies, but more are needed, she says. She has held numerous leadership positions in admissions and recruiting organizations and currently serves as chair of the Southwest Regional Council of the College Board. In this role, Lynes will continue to support AP education, preparing talented students to succeed in university studies.

“Maribeth Lynes is respected nationally for her leadership in the College Board and revered in Arkansas and beyond for her skill in recruiting top students,” said Dean Bob McMath. “She treats the prospective honors students she encounters with respect and empathy as she helps them find the academic path that is right for them. Without Maribeth’s tireless efforts,

the Honors College would not be the success that it is today.”

### In Good Hands

Both McMath and Lynes will be greatly missed, but have ensured a smooth transition for the college.

Noah Pittman, who has ably served as assistant and then associate director of Honors College recruiting, brings solid experience and a broad network of contacts across campus and beyond to continue Lynes’ work in recruiting, programming and directing the AP Summer Institute.

Curt Rom, University Professor of Horticulture who has very effectively directed the honors program in Bumpers College since 2011, will lead the Honors College as interim dean while the university conducts a national search for a permanent Honors College dean. Javier Reyes, vice provost for distance education and head of the search committee, said: “Bob McMath has built something special – this is clearly evident from the strong pool of applicants. Many of these candidates have stated that they are attracted to the position because the Honors College is already a premier program on an upward trajectory. They all want to be a part of something so successful, while recognizing that Bob has set the bar high.”



Russell Cothren

Curt Rom



Shelby Gill

Noah Pittman

Campus interviews for the top dean candidates will take place this fall.





Logan Webster

## *Honors College Hosts SEC Honors Leaders*

It was gray and chilly outdoors, but inside Ozark Hall a warm informality reigned as honors deans, associate deans and directors from Southeastern Conference Schools gathered February 27 – March 1 to discuss the joys and challenges of leading an honors college or program. The SEC Honors Leaders group has been sharing ideas on a listserv and meeting annually for the past several years. This year, 26 honors administrators from 12 of the 14 SEC schools, the best turn out for the annual meeting so far, gathered in the Honors College’s new home in Ozark Hall. Discussion topics ranged from recruiting and retention to building a 21<sup>st</sup> century curriculum, fundraising, diversity, new trends in study abroad and service learning, and communication via Twitter, Facebook and Instagram. The group also explored the possibility of developing a SEC-wide undergraduate research symposium.

“This is a wonderful way to feel like you’re not alone in the problems and issues you’re facing,” said Sumana Datta,

executive director of honors and undergraduate research at Texas A&M. “What’s lovely is the informality – we have a lot of fun.”

“It’s a great place to steal ideas,” quipped Seth Oppenheimer, director of undergraduate research at Mississippi State University’s Shackouls Honors College.

In addition to discussing best practices in honors education, the group enjoyed a formal dinner at Fowler House and a dinner gathering at Bob and Linda McMath’s home, where the Razorback basketball team’s overtime win over Kentucky (71-67) was a highlight.

The Honors College’s beautiful new quarters made a favorable impression on the group. One participant, warming his hands in front of the fireplace in the honors student lounge, asked for photographs of Ozark Hall. “We want to show our president the kind of place we’d like to have for our honors students – seriously!” he said.

---

*This is a wonderful way to feel like you’re not alone in the problems and issues you’re facing.  
What’s lovely is the informality – we have a lot of fun.*

---

SUMANA DATTA  
executive director of honors and undergraduate research at Texas A&M

# Pop Quiz

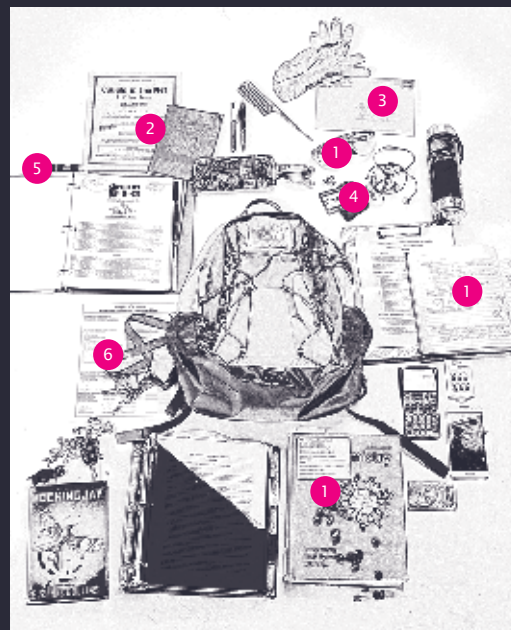
BASED ON BACKPACK CONTENTS,  
CAN YOU GUESS THIS STUDENT'S:

- 1) Major
- 2) Minor
- 3) Hometown
- 4) Part-time job off campus
- 5) Graduate school plans
- 6) *Extra credit:* Part-time job on campus?





## Pop Quiz



### MEET KANESHA DAY

- 1) **Major:** chemistry/biochemistry (20 points)
- 2) **Minor:** drama (25 points)
- 3) **Hometown:** Conway, Ark. (25 points)
- 4) **Part-time job off campus:** pharmacy technician (10 points)
- 5) **Graduate school plans:** pharmacy school at UAMS (20 points)
- 6) **Extra credit: Part-time job on campus:** resident assistant (20 points)

#### Scoring:

|         |              |
|---------|--------------|
| 0-25    | A for effort |
| 26-50   | Cum laude    |
| 51-75   | Magna        |
| 76-100+ | Summa        |



For more on Kanisha visit  
[honorscollege.uark.edu/  
biochemistry](http://honorscollege.uark.edu/biochemistry).

Photos by Russell Cothren

Class Notes



Edmund Harriss

MATH 3923H  
*Mathematical Design and Manufacturing*  
 BENG 4753M  
*Honors Nanotechnology Lab*  
 CHEM 3923H  
*Molecular Gastronomy*  
 COMM 3923H  
*New Media and its Discontents*  
 HUMN 3923H  
*Game Design*  
 WLLC 4023H  
*Language, Culture, and Web 2.0 Technologies*  
 CSCE 3193H  
*Programming Paradigms*



Ryan Klimworth

4103H  
*Entrepreneurship/New Ventures Development*  
 BLAW 2013H  
*The Legal Environment of Business*  
 WCOB 3016H  
*Business Strategy and Planning*



Lorenzo Cornelli

ASTR 2003H  
*Survey of the Universe*  
 CDIS 3224H  
*Language Development in Children*  
 ARCH 5493H  
*History of Urban Form*  
 JAPN 4313H  
*Language and Society of Japan*  
 ENGL 3923H  
*Cool Books about Stuff that Really Happened  
 (Creative Nonfiction)*



Cell Birke

HUMN 3923H  
*Tibetan Buddhist Philosophy & Culture*  
 LAST 4003H  
*Latinos, Migration, and the New South*  
 LAST 4003H/PLSC 399VH  
*Educational Equity & Civil Rights*  
 AFLS 4431H  
*Leadership in Food Policy*  
 ARCH 1013H  
*Honors Diversity and Design*  
 CIED 311H  
*Emergent and Developmental Literacy*

ENGL 3923H 001  
*Medical Humanities Colloquium*  
 BMEG 4623H  
*Biomedical Transport Phenomena*  
 EXSC 4833H  
*Exercise Applications for Special Populations*



© RMN-Grand Palais/  
 Art Resource, NY

ARHS 3923H  
*The Medieval Illuminated Manuscript*  
 MUSY 4113H  
*Honors Ethnomusicology*  
 MUTH 477VH  
*Music & Mind*

BIOL 3923H  
*Rivers in Peril*  
 BIOL 480VH 001  
*Collaborative Ecological Research*  
 GEOG 3003H  
*Conservation of Natural Resources*  
 SCMT 4103/4003H  
*Sustainable Logistics and Supply Chain  
 Management*  
 ANTH 3923H 001  
*Primary Behavioral Ecology*

NEW TRENDS & TECHNOLOGIES

SOCIAL JUSTICE

ENTREPRENEURSHIP AND INVESTMENT

COOL STUFF

PUBLIC SERVICE/HEALTH

ARTS

SUSTAINABILITY

COLORING OUTSIDE THE LINES

Honors students with an extra elective or two have a vast array of honors courses and colloquia to select from—and coloring outside of the disciplinary lines is encouraged. Here's a sampling from the Fall 2014 catalog.



# GAME ON!

By Shelby Gill

College athletes can spend anywhere from 20 to 40 hours a week on their sport. Whether these hours are devoted to practice, travel, weight lifting or individual training, in-season life revolves around playing the game. It's a challenge for any college athlete to manage game play and classwork, but the bar is especially high for honors athletes. Factor in a full schedule of honors classes, and eventually, writing an honors thesis, and you might ask yourself, "When do they sleep?"

To find out exactly how honors athletes manage to practice, play, study and sleep in just 24 hours a day, we talked to five honors students who have managed to excel in their sport and in the classroom. How do they do it? It all starts with the support of their athletics program and honors faculty and staff, who help them juggle test dates, manage scholarship funding, and find a tutor if they need help in a tough class. These honors athletes also keep their grades and athletic stats high with crafty time management, good communication with professors, and by taking some well-deserved time for themselves.

Heymsfield's academic interest in dietetics also spurred an extracurricular interest. In her time away from running, Heymsfield likes to bake. "I really enjoy baking muffins, and my teammates like them too."



## GRACE HEYMSFIELD

**Sport:** Track/Distance  
**Major:** Dietetics  
**Hometown:** Elkins, Ark.  
**1st NCAA champion Distance Medley Relay team in UA history**  
**Honors College Fellow**

**T**his past year, Grace Heymsfield helped propel her distance medley relay team to a national championship – the first DMR title in Arkansas history.

Heymsfield almost missed that championship moment. Growing up in Elkins, she wanted to get away for college, but when she was offered an Honors College fellowship and a place on the women's track team, she knew that the U of A was the "whole package."

"It's pretty incredible that I didn't know what was in my backyard," Heymsfield said.

Heymsfield decided to pursue a degree in dietetics. As a runner, a healthy diet is essential, and Heymsfield's major gives her an edge on the competition, as she's up on the latest research on athletes and food. She's quick to point out misconceptions about the stereotypical runner's diet – take carb loading, for example.

"Everyone thinks that you should carb load the day before you run, but that's really only if you're running a marathon," Heymsfield said.

Heymsfield doesn't carb load the day before, but three and a half hours before a race, she does dose up on a small serving of carbs and protein – a classic peanut butter sandwich.

"It's really individualized for each person," Heymsfield

said. "Everybody has their go-to pre-race meal, and it's really outside of health – it's comfort."

Dietary myths are what led Heymsfield to her honors thesis topic. She received a SURF grant to study the nutritional knowledge of high school students in Northwest Arkansas. Heymsfield not only surveyed the students, but was also able to help with high school recruitment to the U of A.

"That was so fun," Heymsfield said. "High school students are so great to work with."

Between her honors thesis, classes, and track, Heymsfield has had to find the balance between "what has to get done" and "what I'd like to get done."

Heymsfield has practice six days a week for three hours a day, and starts three mornings a week with a three-mile run. On average, track and field practices run about 20 hours a week, but that's only if the team is not traveling to a meet. During the spring, Heymsfield has meets three weekends out of each month.

And school doesn't stop when the team is away. You can often find Heymsfield in the corner of the airport with books spread out.

"There's a huge emphasis on academics," Heymsfield said. "We all take it very seriously."



One of the things that you really have to sacrifice for college athletics is a social life,” Haydar said. He does make time to get together with other Bodenhamer fellows, here enjoying the traditional Bodie Dead Day lunch.

Arkansas Communications



Shelby Gill

## KIKKO HAYDAR

**Sport:** Basketball/Guard  
**Major:** Kinesiology  
**Hometown:** Fayetteville, Ark.  
**Senior year:** 26 3-pointers, 18 steals, co-captain of team  
**SEC Community Service Team, Bodenhamer Fellow**



The adrenaline rush and screaming crowds of Razorback men’s basketball games hooked Kikko Haydar on basketball from an early age.

“I grew up watching games with my father and fell in love with the sport and this team,” Haydar said.

His Bodenhamer fellowship covered academic costs and made it possible for him to try out as a walk-on to the University of Arkansas men’s basketball team. During his freshman year Haydar played in just nine games, but by his sophomore year, he had more than doubled that number to 20 games. By his junior year, he was named captain of the team, and in his senior year, as co-captain, he was key in leading the Hogs to victory against opponents such as Kentucky.

“To go through college not worrying about financial problems is wonderful ... [the fellowship] gave me the ability to not only play basketball, but to fulfill my other dream of one day becoming a doctor,” Haydar said. “I don’t know if it would have been possible in any other place.”

Haydar started at the U of A as a pre-med biology major but his love for basketball and sports medicine led him to change majors to kinesiology.

“I’ve been able to apply everything I’ve learned to myself,” Haydar said. “I’ve watched how people move and why injury occurs.”

His love for sports medicine also led Haydar to his thesis topic – testing the validity of the Zephyr BioHarness, a puck-like monitor used to measure athletes’ heart rate, body core temperature and jumping force (see page 24).

During basketball season, Haydar wakes up at 7 a.m. to go to class, and stays in class until around 1 p.m. Practice starts up at 2 p.m. and can last as late as 8 p.m. He tackles homework until 10 or 11 p.m. and then he goes to sleep and “does it all again.” Weekends are devoted to games, finishing up homework and studying, whether he is on campus or on the road.

“At the end of the day, it’s a lot of hard work and getting things done when they need to be done,” Haydar said.

The hardest part of balancing both athletics and academic work is finding the time to give “full effort to both.”

“You find yourself wanting to slack off sometimes, but you have two very important things and you can’t slack off on either,” Haydar said. “The mental aspect of it is the hardest. You have to learn to push through.”



In Schultz' free time, he likes to stay landlocked and go biking with friends. "I have a group of friends in Hotz, and we love to bike – we go every weekend just to get our exercise and to get away for a little while."



Shelby Gill

## JONATHAN SCHULTZ

**Sport:** Bass Fishing

**Major:** Economics/Marketing, Minor in Spanish

**Hometown:** Little Rock, Ark.

**Won 5 state bass fishing and 2 national casting championships; 9 national fishing sponsors**

**Chancellor's Scholar**

Jonathan Schultz's bass fishing career started at age seven, when he entered a casting competition on a whim and ended up winning the state championship. The next year, he took the national title.

At age eight, Schultz had his first national sponsorship and a ticket to the Bassmaster Classic to teach seminars in fishing. He continued to fish competitively all through middle school and high school, and in his senior year of high school, he won second place internationally out of all high-school-aged bass fishermen.

Schultz continued to collect sponsorships along the way, and now, in college, he represents 10 national companies. Not surprisingly, he decided to pursue an economics degree through the Walton College of Business.

"Most of my sponsors encouraged me to pursue a college degree and many of them encouraged me to major in economics to get a well-rounded business background before I tried to enter the fishing industry," Schultz said.

He decided to pursue an honors degree because he wanted to keep challenging himself. "Sometimes it's hard to

balance everything, but I think I've found a good place where I can still stay competitive in fishing and make good grades," Schulz said.

Schultz has found a way to integrate his love for fishing into his time at the university. As a freshman, he has made his way into a leadership position on the Arkansas Bass Team where he's been able to continue to compete in tournaments on the weekends.

But the great balancing act of going to classes, doing homework and attending fishing competitions has challenged Schultz to get creative with time management.

After each class, Schultz re-writes all of his notes, so that when it comes to test time, he doesn't have to study that much – as little as two hours for a test. Schultz stays in Mullins Library a minimum of four hours a day working on homework and studying. Even if he finishes up all of his assigned work, he's working ahead.

"I try to stay at least two days ahead in my classes," Schultz said. "So when the weekend hits, I can fish all day Saturday and not even think about homework."



In her free time, Butler likes to play guitar and sing. “Singing is just something that has always been really soothing to me; I guess I just associate music with my family and spending time together.”

Walt Beazley



Shelby Gill

## TENI BUTLER

**Sport:** Soccer/Defender  
**Major:** Chemical Engineering  
**Hometown:** Chattanooga, Tenn.  
**Freshman year:** Was instrumental in holding opponents to just 1.22 goals per game; .500 shot on goal percentage  
**SEC Academic Honor Roll, Honors College Fellow**



Teni Butler “grew up on the soccer field,” competing from age eight on, but by the time she reached her senior year of high school, she had decided to sideline soccer from her college experience and focus entirely on academics.

During one of Butler’s final club tournaments, recruiters from the University of Arkansas came to scout a girl on the opposing team, but after finding out Butler hadn’t committed to a school, they invited her for a visit to which Butler responded: “I’m flattered, but I’m really not interested.”

With some convincing, Butler finally came on an official visit to the U of A.

“It was the first campus I stepped onto, and I thought, ‘This could be home. I could see myself here for four years,’” Butler said. “I think that was a culmination of the coaches being so great and having a clear vision for this team, but they were also very accommodating to the fact that academics were going to be a huge thing for me.”

Butler was put in touch with the Honors College and she sat down with Dr. Ed Clausen, a professor of chemical engineering and the honors program director of the College of Engineering at that time, to devise a game plan.

“That’s what really sealed the deal for me,” Butler said. “I laid out my goals and what I wanted out of college, and Dr. Clausen was able to say: ‘You can do that here, and we will support you and accommodate what needs to be done to get you where you need to be.’”

Butler was also awarded an Honors College fellowship.

“I ended up coming out for Fellowship weekend and interviewing,” Butler said. “That was really cool because I knew that with both academic and athletic scholarships I could get a good financial package for my parents. Winning the fellowship ultimately made it possible for the soccer program to spread out their resources a little more.”

Thanks to soccer, Butler had learned time management over the years, but her honors studies have taught her how to communicate with her professors.

“Being an athlete in engineering, people realize that you are willing to put the work in,” Butler said. “My professors have always been really supportive of that – especially in the fall when I’m missing every other Friday and sometimes Thursdays for travel.”



Arkansas Communications

The walls of Bradham’s apartment are covered in colorful hand-painted canvases. In her free time, Bradham finds tranquility in painting: “It’s a way for me to just take a break and relax.”



Shelby Gill

### TERA BRADHAM

**Sport:** Swimming/backstroke, breaststroke, individual medley  
**Majors:** Journalism & Spanish  
**Hometown:** Round Rock, Texas  
**Holds 6 Texas state records**  
**Coach Wooden Citizenship Cup Semifinalist, Honors College Fellow**

**T**era Bradham’s love for swimming started in her neighborhood pool, where a lifeguard spotted her talent at age five.

“He asked my mother if I swam for a club team, and he told her, “You’ve got a breastroker there!”” Bradham said. “I wonder if that lifeguard knew what he was doing. That moment changed my life.” By the time Bradham reached high school, she broke school records and received All-American honors in the 100 breaststroke, 200 individual medley and 200 medley relay.

Her high school accomplishments did not go unnoticed as Bradham went on recruiting trips to Ohio State, Louisville, Harvard and the University of Arkansas. Upon being greeted with a warm “Woo Pig Sooie,” she knew Arkansas was the school for her, but it wasn’t just athletics that piqued her interest. Competing for and earning her Honors College fellowship cinched the deal.

“I feel like I have absolutely gotten as good an education here as I would have gotten at Harvard or any other school,” Bradham said.

Bradham planned to start college as a kinesiology major, but in a summer history class, she was encouraged to pursue a degree in writing. She switched her major to broadcast journalism and Spanish, and it’s been a “perfect fit” in every

way but one: time. Many of Bradham’s journalism assignments require hours of work outside the classroom, which is difficult to manage, given her schedule starts at 4:30 a.m. most weekdays and includes training, two practices, weight lifting, classes, and study. She also makes time for extracurricular activities, like volunteering at her church. Although her schedule is packed, Bradham makes sure to carve enough sleep into her schedule.

“I try to go to bed really early,” Bradham says. “If it’s in the double digits, I’m through.”

The waters haven’t always been calm for Bradham. When she was 12 years old, she began experiencing intense shoulder pain. Doctors found that torn cartilage in her shoulder was completely detached from the bone. Bradham has had multiple surgeries since her initial diagnosis, and she works every day to remain positive.

Bradham keeps a poster of Jackie Robinson on her door at home. When she’s feeling upset, she will give Jackie a “little tap.”

“If you know his story, you know how hard he had it,” Bradham said. “I didn’t choose to be injured, but I’m going to do what I do because I chose this sport, and I choose to keep going.”





USEPA/Erika Norlemann

Above: The WaterHOGS team (back row, l-r: Shumon Hasan, D.J. Lee, Jamie Hestekin; middle: Florencio Serrano Castillo, Keiron Durant, Cayla Tichy; front: Christa Hestekin, Lauren Cole, Omar Qasem (not pictured: Jordan Goss, Stephanie Schulte).  
Left: Cole, Castillo, Durant and Qasem field questions at the EPA P3 competition, where they won the Sustainable Development Award.

## Simple Solution for a Thirsty Planet

An interdisciplinary team of honors students has come up with a simple solution to a global problem..

“780 million people – one in six people around the world – don’t have access to clean or safe drinking water. That’s where we come in,” said Lauren Cole, an Honors College fellow majoring in chemical engineering. The WaterHOGS’ system uses scrap materials and human power to produce 1,500 gallons of clean, safe water a day – enough to provide drinking, bathing and cooking water for a village of 350 people, at a cost of less than one cent per gallon.

In competition with more than 50 teams from top universities across the nation, the WaterHOGS were selected to receive the American Society of Civil Engineers Sustainable Development Award at the Environmental Protection Agency’s P3 competition in Washington, D.C. last spring.

The students weren’t starting from scratch: engineering faculty members had roughed out a proposal to purify water using a treadle pump, a common tool in developing countries.

The students had just seven weeks to finesse the design, but eventually hit on a plan that worked. They used the treadle pump to force water through a filter made of sand, coarse gravel and cloth. After that, bleach is added to the water to disinfect it. Because bleach degrades over time, they also developed a system to convert salt water into bleach on

site using a battery-powered electrolysis unit. The car battery can be recharged with a bicycle hooked up to a DC motor, similar to ones used to power a scooter. The system costs \$522 to build in the U.S.; the team estimates it would cost less than half that in a developing country, where scrap materials would be used.

Communication junior Jordan Goss worked with Stephanie Schulte, assistant professor of communication, to develop step-by-step instructions on how to build the system in English and Hindi, illustrated with numerous photos. The team is proud that their work is offered for free on the web site of faculty mentor Christa Hestekin, holder of the Ansel and Virginia Condray Endowed Professorship in Chemical Engineering. Roy Penney, professor of chemical engineering, also mentored the team.

“A lot of the teams’ designs at P3 were about making money,” said Carla Tichy, an Honors College fellow and chemical engineering senior who led the team. “Ours is about saving lives.”

Team members hailed from Panama, Trinidad and Tobago, Japan, South Korea, Peru, Jordan and the U.S.

“We are a very diverse team, and that helped a lot in coming up with solutions,” said Florencio Serrano Castillo, an honors chemical engineering student.

*Honors College travel grants supported participation in the P3 competition.*

## Good-for-You Baked Goods & Chocolate

Imagine reaching for a piping hot biscuit or taking a forkful of crisp, flaky piecrust, knowing that each delicious bite will lower your bad cholesterol, raise your good cholesterol, and maybe boost your metabolism to burn more calories. Sound too good to be true? It gets better: how about savoring a chocolate bar that promotes heart health and combats fat? Sarah Mayfield, an honors food science senior with a second major in biochemistry, is working with Andrew Proctor, University Professor of Food Science, to make this dream a reality.

She has spent more than five months making shortening and, more recently, chocolate with a new soy oil that Proctor produced that contains conjugated linoleic acid (CLA).

“The CLA-enriched soy oil has anti-obesity, anti-carcinogenic, anti-diabetic, and anti-arthritis properties, and it’s cholesterol-free and low in saturated fat,” Sarah Mayfield said.

A recent University of Arkansas System Division of Agriculture study that fed CLA-enriched feed to obese rats demonstrated its health benefits: in 30 days, total serum cholesterol and LDL (“bad”) cholesterol were reduced by 50%, and a fat-burning gene was activated.

Given today’s obesity epidemic and the economic potential – soybeans are a \$2-billion-a-year-crop in Arkansas – the search is on at the university to produce CLA-rich food products with soy oil. And that’s where Sarah Mayfield comes in.

In the lab, Mayfield assembles the ingredients for her latest batch of shortening. The recipe is simple: melt together the fats, which include regular and CLA-enriched soy oils, then cool them in a cold-water bath while stirring with a kitchen hand beater. The combination of cooling and stirring causes the fats to crystallize and form a semi-solid substance that looks exactly like the shortening in your kitchen pantry. “So crystalline structure, rather than a high concentration of saturated fats, is responsible for the texture,” Mayfield explained.

Nearby, a tray is filled with more than 70 shortening samples in plastic containers, each marked with different percentages of CLA-enriched and regular soy oils. Later in the afternoon Mayfield will ship them to the University of

Ghent in Belgium, where she will spend the summer subjecting the samples to a battery of tests.

“We’ll be looking at viscosity, hardness, color, and we’ll use X-ray crystallography to look at the crystal structure,” Mayfield said. “We’ll also use the DSC – differential scanning calorimetry – to see how much solid fat is in there. You don’t want it to be too low, or it would melt at room temperature.”

In addition to testing her shortening samples, Mayfield will work in the University of Ghent’s Cacaolab to develop chocolate bars and a chocolate paste that use a combination of CLA-enriched soy oil and the customary palm oil to provide the fat.

Once Mayfield returns to campus in fall 2014, she will study the oxidative stability of the shortening and chocolate over time.

“Fats go bad because they oxidize,” she said. “This leads to rancidity and off odors and flavors.”

Unsaturated fats oxidize faster than saturated fats, so this test will be an important final step. Mayfield also plans to start baking with the CLA-enriched shortening and regular Crisco, then compare the baked goods for crispiness and hardness.

“I’ll probably start with something simple, like pie crusts, that are easy to analyze,” she said. It’s a good bet that when Mayfield’s ready to taste test her baked goods and chocolates, she’ll have no problem finding volunteers.

*Mayfield received an Honors College International Research Grant, a State Undergraduate Research Fellowship, a Bumpers College travel grant and support from the University of Ghent.*



Top: Sarah Mayfield uses a texture analysis machine to check consistency of CLA-rich shortening; above, shortening samples await testing.

Photos by Russell Cothren



*I'm interested in how the space feels. One of the big things we're taught is how to make spaces outside.*

— DONNA FREEMAN  
honors landscape architecture student

## Studying Fayetteville's Farms

Growing up, Donna Freeman didn't have ready access to fresh fruit and vegetables. Raised by a single mother, she recalls that "we lived paycheck to paycheck, pretty much most of my life. Food was definitely something we had to watch." When a small garden planted in front of her college apartment yielded homegrown tomatoes, basil and raspberries, she got hooked on gardening: "It offset our food budget, and it tasted better too."

Now a fifth-year honors landscape architecture student, Freeman is studying ways to make fresh produce more accessible to all – including people lacking the time, talent or money to garden. Her honors thesis, directed by Noah Billig, director of the Fay Jones School of Architecture honors program, focuses on three Fayetteville farms established within the last five years, each operating on different models. Tri Cycle Farms is a non-profit that sells one-third of its produce to cover costs, with the rest of the produce going to food banks and volunteers who work at the farm, while Cobblestone Farm is a church-based nonprofit whose members pay for a weekly delivery of the farm's bounty. Ozark Alternatives is a commercial farm that works with interns and volunteers from WWOOF (World Wide Opportunities on Organic Farms). Freeman also included a well-established exemplar farm located in Detroit in her study.

Freeman started by painstakingly recording the physical aspects of each farm, such as size, location, plantings,



Above, more signage is needed to help visitors find urban farms; below, White Leghorn, Araucana and Sex-link chickens roost in a mobile coop fashioned from a Quonset hut.



Photos by Stephen Ironside

irrigation and population density of the surrounding area. In addition to producing site analysis drawings, maps and diagrams, she also tried to capture more intangible qualities. "I'm interested in how the space feels," she said. "One of the big things we're taught is how to make spaces outside."

A recent trip to Ozark Alternatives provided an excellent opportunity to experience outdoor "rooms." Located just outside of Fayetteville's city limits, the tiny, two-acre farm lives large. An office, outbuildings and residential cabins cluster around a clearing that offers spacious views of Mount Sequoyah and a spring-fed pond. Rough-hewn driftwood gates mark the path from home to work: one-third of an acre of raised beds, two hoop houses coaxing seedlings to life, and three flocks of chickens clucking and rustling in their coops.

"With buildings, there's ceilings and walls, and rooms tend to be relatively small. With the outdoors, those spaces can be very large, with a very high ceiling," Freeman said, gesturing at a sky suffused with sunset peach and orange





hues. “I’m also looking at issues like privacy, and whether there’s access to seating and shade.”

In addition to documenting the physical layout of each farm, Freeman is studying how each farm operates, gathering information on short- and long-term goals and plans, security measures, classes offered, distribution of produce, and community involvement. She has also surveyed owners and workers to gather demographic data and feedback on the overall experience. She is still gathering data, but has identified a few issues already.

“One of the biggest things I noticed: the farms can be extremely difficult to find,” she said. And that’s unfortunate, because farms hidden at the end of dirt roads have great potential to provide green space and to educate city dwellers on concepts such as permaculture, a type of sustainable agricultural system modeled on natural ecosystems. “The permaculture at Ozark Alternatives is beautiful – dark purple cabbages mixed in with green lettuce, pea plants and carrots,” Freeman said. “It’s a great opportunity, but it’s

Top and left, Donna Freeman sketches a section of the hoop house; above, a sunflower plant yet to bud glows at dusk.

underutilized as a place where people can be when they’re not working and harvesting plants.”

Ultimately she hopes to produce a set of guidelines, such as signage for those hard-to-find farms, which will help them strengthen their community ties, expand their volunteer base and increase revenue. In Fayetteville, where approximately 43% of the elementary school children participate in free or reduced meal plans at their school, her honors thesis may help in getting healthy, locally-grown food to hungry kids.

*Freeman’s research was supported by an Honors College Research Grant.*



## Avoiding Overtraining: Testing the Zephyr™

A broken nose and foot, dislocated ribs, a chipped elbow bone, a pinkie finger that never will be straight: Kikko Haydar, an honors kinesiology major and walk-on captain of the Razorbacks basketball team, has suffered some bumps and bruises in his basketball career, but he dismisses them as “all contact stuff.”

In his honors thesis, Haydar examined a new tool that may help prevent non-contact injuries, many of which revolve around the anterior cruciate ligament (ACL), one of four major ligaments of the human knee.

“One wrong step, tear your knee, why does this happen?” Haydar asks. He points to early specialization in a single sport and overtraining as factors in the estimated 250,000-300,000 ACL injuries suffered by athletes each year.

“You start kids early, train them hard, and stick to one sport,” he said. By the time a lucky few are competing at the collegiate level, opportunities for rest and relaxation are few.

“Basketball is essentially year-round. You get two weeks in the summer, and two days over Christmas break, and if you’re good enough, you play in a post-season tournament and miss Spring Break,” he said.

With constant play the chances of overtraining and in some cases, injury, increase, but fortunately, new devices are available to assess the impact of stress on athletes. The Zephyr™ Bioharness, a puck-like device that is attached to the athlete’s body either by a strap across the chest or a tight-fitting sleeveless shirt with a built-in pocket, is advertised as an effective tool for measuring heart rate, breaths per minute, and body core temperature during exercise, as well as vertical power and g-forces.

When the strength coach handed out the Zephyr™ to the men’s basketball team, Haydar was skeptical: “It’s this small thing, not even connected to the legs.”

He researched it, and no studies had established how the Zephyr™ measures force or compared its accuracy to that of a force plate.

For his honors thesis, directed by Michelle Gray, assistant professor of health, human performance and recreation, Haydar recruited 10 members of the Razorback basketball team, and 10 men who were recreational athletes. The subjects conducted a simple vertical jump test, wearing the Zephyr™ and landing on a force plate. He found that both the Zephyr™ and the force plate were more accurate in measuring the force of the Razorback athletes versus that



Arkansas Communications

Kikko Haydar grabs some air time; (left) Haydar’s thesis analyzed the accuracy of this puck-like training device, which may help prevent non-contact injuries.



Shelby Gill

of the recreational players. Haydar believes this is due to “specificity of training”; the Razorback team members have been taught how to jump and land with less force and had greater “air time,” giving both devices increased time to record accurate readings. Although there were some anomalies when he converted the Gs measured by the Zephyr™ to the Newtons measured by the force plate, Haydar did confirm that when the Zephyr™ readings were high, the force plate readings were as well.

Hands-on experience with the Zephyr™ also make the case for its effectiveness.

“The team went a whole year without injuries. Maybe it’s luck, or it may have been the Zephyr™, but we’re definitely healthy,” he said with a grin.

*Haydar received an Honors College Research grant.*

When you brand digital magazines as small snippets of information, small photos, and layers, it detracts from the long-form journalism that has defined magazines up to this point.

— SHELBY GILL  
honors journalism major



Shelby Gill

## Lost in Translation

No trees are cut and no gas and oil are needed to deliver digital magazines directly to your doorstep. Old issues can be stored on a tablet rather than cluttering up your closet or the local landfill. What's not to love? Plenty, according to honors journalism major Shelby Gill, whose passion for magazines dates back to childhood, when she and her mother cozied up together to savor *National Geographic* and *Southern Living*.

"I really like magazines, I own an iPad, and I read a lot of blogs," Shelby Gill said. "I'm the perfect candidate to be interested in digital magazines, and people like me are not won over at all." Guided by Patsy Watkins, associate professor of journalism, Gill set out to explore the strengths and weaknesses of this emerging medium. She selected the bestselling titles in the three highest-selling categories of tablet magazine applications: *Self* (health and fitness), *Cosmopolitan* (lifestyle) and *The New Yorker* (news). Gill then spent a full year coding and analyzing every digital issue of these magazines. Her findings? Some of the best aspects of print magazines have been lost in translation to digital, and publishers have not yet fully mined the opportunities of the digital format.

Gill focused on analyzing levels of interactivity, which ranged from the user interacting with the medium (using a finger swipe to pull up an article) to direct user-to-user communication (such as Twitter feeds) to "participatory journalism" (readers produce and influence content). Her

research found that most of the interactive content was at the lowest level, where the user might take a quiz, for example, then "rub" a circle to reveal the answer. In addition to this sort of gimmicky feature, publishers use interactivity to compensate for the cramped confines of the tablet screen. *Self* and *Cosmo*, for example, build in layers of content, requiring the reader to busily tap and scroll to unearth copy. Text is confined within boxes, and photos are small.

"When you brand digital magazines as small snippets of information, small photos, and layers, it detracts from the long-form journalism that has defined magazines up to this point," Gill said.

She found *The New Yorker* easiest to read and navigate, with content organized into sections similar to those found in print, and a clean design with ample white space. Multimedia features were grouped in one section that users could explore without detracting from the reading experience. *The New Yorker* also invited participatory journalism with its cartoon caption contest, which viewers tap to enter. On the whole, however, Gill found that the digital magazines she studied shied away from user-generated content.

Gill sees audiovisual features as a key asset for digital magazines, and they are already being exploited to some extent. *Self* includes video demonstrations of workouts, and *The New Yorker* illustrates film commentary with video clips and includes audio of authors reading their poems. Long term, she predicts that "throw away" magazines will move

to digital format only, but "the ones you keep in a basket by your fireplace," like the *National Geographic* magazines she enjoyed with her mom, will live on in print format.

To learn how Gill managed a big topic with scant published research, visit [honorsblog.uark.edu](http://honorsblog.uark.edu).



Shelby Gill and faculty mentor Patsy Watkins examine *Kinfolk*, a lifestyle magazine where Gill recently published her work; above, Gill's thesis explored the strengths and weaknesses of digital magazines.



Logan Webster





The BioBotics Team celebrate their second-place win at the Tri-State Governor's competition with Sam Walls, president and CEO of Arkansas Capital Corp. (l-r Michael Iseman, Walls, Kelley Coakley, Rachel Zweig, Jeff Amerine and Carol Reeves)

Arkansas Economic Acceleration Foundation

## *BioBotics Solutions Business Plan Team Wins Big*

Every year more than 60,000 patients are misdiagnosed due to mix-ups in pathology laboratories. BioBotics Solutions, an interdisciplinary, multi-campus business plan team, may save lives – and stretch scarce healthcare dollars – with a simple idea to automate tissue handling, one of the few remaining areas in a pathology lab that require a human touch.

Michael Iseman, an honors finance senior, said the team hopes to move forward with the plan.

“There have been a lot of people who have approached us who are interested in investing after we get a bit more work done,” he said. “We’re going to see what it takes to move it from business plan competitions to a real business.”

BioBotics Solutions is based on a process developed by Dr. Shree Sharma, a renal pathologist at the University of Arkansas for Medical Sciences. His big idea: have surgeons place tissue directly into a biopsy bag inset into a specially designed container, which can be transferred by a robotic arm once it arrives in the lab. Sharma’s patent-pending solution would decrease pathology lab errors from 1 percent to 0.005 percent, cut processing time from two to three minutes down to 20 seconds, and free up pathology assistants for analytical work.

It took a year of effort across several campuses to transform Sharma’s idea into a promising business proposal. Iseman and Rachel Zweig, a mathematics and chemistry major at Hendrix College, developed 20+ iterations of the business plan. German exchange student Maria Driesel led in developing the presentation, and honors engineering students Kelley Coakley and Aundria Eoff created a prototype for the BioBox in a class taught by Jeff Wolchok, assistant professor

---

*Bloomberg Businessweek recently listed BioBiotic Solutions as one of ‘Nine Hot New B-School Startups.’*

---

of biomedical engineering, Jeff Amerine, director of technology ventures, and Carol Reeves, associate vice provost for entrepreneurship, advised the team.

The far-flung teamwork gave the students a good preview of work within a company today, where it’s unlikely that all players will work in one location.

“That’s probably been the most valuable lesson, learning how to manage a creative collaboration at a distance,” Iseman said.

The team’s Skype sessions, working weekends and Spring Break indoors paid off: BioBiotic Solutions won the grand prize at the Values and Ventures Business Plan Competition, first place in the G60 Elevator Pitch Contest, and scored second-place wins at the Nebraska Global Venture Competition, the Donald W. Reynolds Governor’s Cup Competition-Arkansas and the Tri-State Governors Cup Competition. The students took home \$71,000 in cash and an additional \$26,000 pledged for in-kind marketing, legal and accounting services.

The flurry of awards has drawn national attention: *Bloomberg Businessweek* recently listed BioBiotic Solutions as one of “Nine Hot New B-School Startups.”

“The team was simply superb,” Carol Reeves said. “Many judges told me their plan was ‘Wall St.-ready’ and better than most plans they see from professionals.”

## *New Path to Success*

Honors College Dean Bob McMath and his wife, Linda, have long planned to make a need-based scholarship gift to the Honors College. When Honors College Assistant Dean Maribeth Lynes proposed the idea of a Path Program that would mentor students from underrepresented populations, they knew they had found the program they wanted to support.

The new program will help students like Terrance Boyd, who was born and raised in the tiny Delta town of Humphrey, Ark. (population: 560). Boyd made the most of his four years as an honors business administration/retail major in the Sam M. Walton College of Business: he studied abroad in Spain and Mozambique, held two internships, and researched Latino consumers, along the way winning Honors College study abroad and research grants.

“That trip to Mozambique was my favorite; there was no way to stay in your element there,” Boyd recalled. “I saw the determination in the people there, and their resilience, and I had a chance to reflect on my own life and how fortunate I am to participate in study abroad programs. I decided I should do all that I can to help others have the resources I’ve had.”

Now Boyd has the chance to do just that. He is helping to develop the Path Program and recruit the first group of participants.

“The Path Program is going to be an amazing opportunity for these students,” Boyd said. “There are so many resources out there, and they don’t always know about them.”

Maribeth Lynes has worked throughout her 34 years on



Stephen Ironside

Bob and Linda McMath have committed \$100,000 to endow a scholarship for students enrolled in the new Path Program, which prepares students from underrepresented populations to excel at the U of A.

campus to open the door to higher education to students from underrepresented populations. “Expanding access to rigor – I’d say that’s my passion,” Lynes said. “The Path Program will be very effective in growing the pool of high-achieving students who can take advantage of all that the Honors College offers.”

The McMaths are giving \$50,000 to endow a scholarship for students enrolled in the Path Program. They are challenging others to participate, with a goal of matching the initial \$50,000 gift in three years’ time. The McMaths have also pledged an estate gift of \$50,000.

“It’s a compelling program that addresses the need to identify, recruit and mentor students who might not have even thought of coming to the University of Arkansas,” Dean McMath said. “Linda and I are investing in these students’ lives, and we hope others will do the same.”



### **WANT TO JOIN THE MCMATHS IN SUPPORTING PATH PROGRAM SCHOLARS?**

Visit [honorscollege.uark.edu/McMath\\_Challenge](https://honorscollege.uark.edu/McMath_Challenge).  
The McMath match will double your gift!

**OR PERHAPS YOU'D LIKE TO MAKE A GENERAL GIFT TO SUPPORT HONORS INITIATIVES** in service learning, study abroad and research. Visit [onlinegiving.uark.edu](https://onlinegiving.uark.edu). Your annual fund gift may be designated to the Honors College.

Thanks! Your gift makes a difference.



## Honor Roll

Thanks to ongoing support and encouragement from faculty and staff and a considerable amount of smarts and talent among our Honors College students, the University of Arkansas ranks high nationally among public institutions for the number of Truman Scholars (18 scholars, ranked 13th), Goldwater Scholars (49 scholars, ranked 15th) and Rhodes Scholars (10 scholars, ranked 38th). Congratulations to the following honors students and all who mentor them:

### MARSHALL SCHOLARSHIP

This award recognizes students with potential to excel as scholars and leaders and supports one to three years of graduate study at any university in the United Kingdom; only 34 students were selected nationwide.

+ **Mike Norton** - Agricultural Economics, Poultry Science  
*mentor - Lanier Nalley*

### TRUMAN SCHOLAR

This award recognizes students who aspire to careers in government and public service; only 59 students were selected nationwide.

+ **Cicely Shannon** - Economics  
*mentor - Robert Stapp*

### GOLDWATER SCHOLAR

This award recognizes outstanding mathematics, science and engineering students planning careers in scientific research.

+ **Hailey Dunsworth** - Chemical Engineering  
*Jamie Hestekin - mentor*

### GILMAN SCHOLARS

The Gilman Scholarship provides funds for study abroad.

+ **Matthew Browning** - International Business/Economics  
+ **Lauren Chance** - Biomedical Engineering  
+ **Steven Denmark** - German  
+ **Derek Fukumoto** - International Relations/German  
+ **Alexandrea Kim** - Chemistry  
+ **Kayla Skinner** - Psychology/Spanish  
+ **Haley Smith** - Anthropology  
+ **Noel Wheeler** - English

### GATES MILLENIUM SCHOLAR

This award provides funds to support undergraduate study to students from underrepresented populations.

+ **Lyndsey Dickson** - Civil Engineering

### J. WILLIAM FULBRIGHT SCHOLARSHIPS

This program awards grants for research and teaching assistantships in foreign countries.

+ **Adrian Beam** - Music, European Studies; Austria  
*mentor - Martin Nedbal*  
+ **Courtney Hill** - Civil Engineering; South Korea  
*mentor - Wen Zhang*  
+ **Karsten Powers** - Spanish, International Relations; Spain  
*mentor - Brenda Magnetti*

### NATIONAL SCIENCE FOUNDATION GRADUATE FELLOWS

Recipients are awarded three years' support for graduate studies in all scientific disciplines.

+ **Megan Dunn** - Chemical Engineering  
*mentor - Shannon Servoss*  
+ **William Erwin** - Chemical Engineering  
*mentor - Shannon Servoss*  
+ **Courtney Hill** - Civil Engineering  
*mentor - Wen Zhang*  
+ **Ross Liederbach** - Electrical Engineering  
*mentor - Alan Mantooth*  
+ **Frederick McCollum** - Computer Science/Math  
*mentor - Mark Arnold*  
+ **Justin Norman** - Chemical Engineering/Physics  
*mentor - Keith Roper*  
+ **William Stirtz** - Biological Science  
*mentor - Kim Smith*  
+ **Douglas Wolf** - Environmental, Soil, and Water Science  
*mentor - Kristofor Brye*



Russell Cochren

Truman scholar Cicely Shannon spends two hours a week reading with a local schoolchild.

To learn more about her service work visit [honorsblog.uark.edu](http://honorsblog.uark.edu).



## Alumni Updates

### ELIZABETH ARREDONDO

(B.S. in biology with a minor in mathematics, *summa cum laude*, '11) is pursuing a master's degree in biology at the U of A, and plans to work in wildlife conservation.

**RENEE BOECK** (B.A. in psychology, *summa cum laude*, '03) earned a master's degree in international disaster psychology from the University of Denver, and is currently pursuing a doctoral degree in clinical psychology at the University of Missouri-St. Louis. She is focusing her research on trauma and Post-Traumatic Stress Disorder.

### ELLEN BRUNE (B.S.Ch.E., '09)

is the owner and chief scientific officer for Boston Mountain Biotech LLC, a Fayetteville-based startup firm that offers a cheaper, faster way to manufacture protein-based pharmaceuticals. Her protein purification system, Lotus, is being used at one of the top research hospitals in the country. Brune completed her Ph.D. in chemical engineering at the U of A in 2013 and was recently selected as one of *Northwest Arkansas Business Journal's* "Fast 15," which highlights individuals under age 30 who are on the "fast track to success."

**SAMUEL BURNS** (B.S. in chemistry/biochemistry, *cum laude*, '08) recently completed his M.D. at University of Arkansas for Medical Sciences and is now a resident in general surgery at the University of Oklahoma-Tulsa.

**BRYAN CAMPBELL** (B.A. in broadcast journalism, with a minor in history, '13) is pursuing a M.F.A. in documentary film at Wake Forest University. He is also getting hands-on experience as creative director at Wrought Iron Productions, a

Updates continued on page 30



**EMILY BAKER** (B.Arch., *summa cum laude*, '05) earned her master's of architecture at Cranbrook Academy of Art in Bloomfield Hills, Mich., and is now an assistant professor of architecture at the American University of Sharjah in the United Arab Emirates. She writes: "It's an honor to be teaching students (80% female) here in the Middle East, in an architecture school setting very similar to the one I attended in Fayetteville."

Above, Baker (back row, third from left) and her students in front of a steel wall they designed and built last spring.





**MORGAN BYTTNER** (B.A. in international relations and Middle East studies with minors in Arabic and history, *magna cum laude*, '12) is serving as a Peace Corps volunteer, teaching English as a foreign language, in Guinea, West Africa. Upon completion of service in 2014, she plans to stay in Guinea to work as a translator and cross-cultural liaison for a private company. Above, Byttner “with four of my best and brightest female students,” preparing to record a malaria prevention and information PSA for the local radio station.

student-created production company. He writes: “Using the experience I gained working at UA Productions and skills I learned from the TEXT Project and broadcast journalism department, I was set up pretty well in terms of past experience to help them continue to develop WIP and take it to the next level.”

**ELIZABETH CARUTH** (B.A. degrees in international relations, European studies and German, with a minor in history, *magna cum laude*, '12) completed a master’s degree in international studies at the University of Denver in June, and this fall will begin teaching English in a German high school as part of the Fulbright English Teaching Assistantship Program.

**KYLE CHILDERS** (B.A. in political science with minor in legal studies, *magna cum laude*, '08) completed his

J.D. at Boston University and now serves as corporate legal counsel for Plymouth Rock Assurance Corp. in Boston, Mass.




**STEPHEN COGER** (B.A. in English with minors in Spanish and Latin American studies, *magna cum laude*, '09) has wrapped up work on a law degree from the University of Washington Law School in Seattle, paid in full by the Gates Public Service Law Scholarship. While in law school he worked on issues ranging from Tibetan refugee rights to farmworker justice through a series of internships. Beginning this fall, he will carry out human rights work in India funded by an American India Foundation William J. Clinton Fellowship. He writes: “While I’m there, I’ll meet up with Dr. Burris and Geshe Dorjee on their 2015 TEXT trip! Arkansas connections span the world!” Left, Stephen Coger had just checked out a swimming hole in Tucumán Province, Argentina when this photo was taken – “not a surprising activity for an Arkansan, huh?” he wrote.

**JEFF DEAN** (B.A. in physics, *cum laude*, '06) is a U of A Distinguished Doctoral Fellow and research associate for the College of Education and Health Profession’s Office of Innovation for Education. A paper that he coauthored, “The Rising Cost of Teachers’ Health Care,” was ranked 14th on a list of top 20 articles of 2013 published by *Education Next*, a publication of Harvard University, Stanford University and the Thomas B. Fordham Institute.

**SARAH FINE** (B.A. degrees in English and American studies with minor in classical studies, *summa cum laude*, '07) completed a master’s degree in American studies at Brown University and a master’s degree in city planning at the University of California, Berkeley. She is currently employed as a transportation planner at the San Francisco County Transportation Authority.

**JONATHAN FRANKLIN** (B.S.B.A. in marketing management, *cum laude*, '07) earned his doctor of dental surgery from the University of Tennessee Health Science Center and is now an associate dentist with Smile Center Dental in Austin, Texas.



**QUIET GHOSTS**  
 WORKS IN PAPER BY EMILY CHASE  
 RECEPTION: SATURDAY APRIL 19, 7:00 P.M.-10:00 P.M.

AT LALALAND GALLERY,  
 641 MARTIN LUTHER KING BLVD.  
 FAYETTEVILLE, AR 72701  
 CONTACT: EMILY CHASE,  
 EMMARICHASE@GMAIL.COM

THIS EXHIBITION WILL BE ON DISPLAY  
 APRIL 17-22  
 GALLERY HOURS:  
 MON-FRI 6-9 P.M. & SUN 2-6 P.M.  
 THANKS TO THE CENTER FOR CRAFT CREATIVITY AND DESIGN

**EMILY CHASE** (B.F.A. degree, *summa cum laude*, '13) has developed a new series of ethereal illuminated sculptures that she exhibited at LaLaLand Gallery in Fayetteville last spring. The Living Arts Gallery in Tulsa, Okla. will mount a solo exhibition of her work in June 2015.

**WILL GILBRECH** (B.S.B.A. in finance, *cum laude*, '14) was one of 11 recent graduates selected for the inaugural class of Arkansas Fellows. The Arkansas Fellowship program pairs the state's top college graduates

seeking entrepreneurial experience with Arkansas-based host companies for two-year internships that pay an annual salary of \$40,000. Gilbrech joined several other honors alumni working at DataRank (see Matt Seubert, p. 34).

**KIKKO HAYDAR** (B.S.E. in kinesiology/exercise science, *magna cum laude*, '14) has signed a three-year contract with a professional basketball team in Beirut, Lebanon, where he plans to play as long as he remains healthy. Long-term, he plans to practice medicine.

**JENNIFER HEISSERER** (B.S.B.A. with minors in Spanish and marketing, *summa cum laude*, '08) completed her M.B.A. at Washington University in St. Louis and is now a senior analyst of investor relations and finance at Post Holdings, Inc. in St. Louis, Mo.

**CHELSEA HODGE** (B.M. in music performance and German, *summa cum laude*, '12) recently completed her M.A. in history and has received a doctoral academy fellowship in support of doctoral studies in history, both at the U of A. Hodge also serves as assistant director of recruitment at the Honors College. She writes: "I lived in Pomfret my freshman year, and I made my best friends there! There are 12 of us who still get together for Christmas, summer vacations, and weekend trips. Every single one of us is doing amazing things - graduate school, Fulbrights, medical school, teaching abroad. I am so thankful for the community the honors dorm gave me, and how it has translated into lifelong best friends!"

**JONATHAN KERBY** (B.S.C.E., *magna cum laude*, '13) is a civil analyst with Kimley-Horn and Associates, Inc. in Dallas, Texas.

**KATIE MCGEHEE** (B.S.A. with minor in environmental, soil and water science, with honors distinction, '13) is working as a production supervisor at Tyson Foods' Clarksville plant. She and faculty mentor Jefferson Miller are writing an article on women poultry workers in Rwanda.

Updates continued on page 32





**STEPHEN IRONSIDE** (B.S. in biology and anthropology with minor in Spanish, *cum laude*, '10) is self-employed at Ironside Photography LLC, shooting for clients such as Walmart, Fayettechill Clothing Company and Crystal Bridges Museum of American Art. He writes: "The thing I most appreciated about the Honors College was the study abroad opportunities presented to me and funded through my Honors College Fellowship. These programs abroad lit a fire in me and created my love of travel, and I've already gotten to use those experiences in my professional work. My most recent professional excursion was to shoot a wedding in Bolivia, with plenty of travel time afterwards."

Above: Boats at Lake Titicaca, Bolivia.

**CLINT LINDER** (B.S.B.A. in economics and marketing, *cum laude*, '11) is working as an airport jet fuel terminal technician for the Shell Oil Pipeline. He writes: "Life throws curveballs. I had a well-paying job working for Shell Trading in Houston but I decided to take a field job to diversify my Shell resume. Now I'm living in Chicago, and I'm really enjoying my job. It is important to not be afraid to branch out and try new things and places."



**CHRIS MEIER** (B.A. in psychology with minor in history, *magna cum laude*, '04) completed his J.D. at Southern Methodist University Dedman School of Law and is currently employed as general counsel/chief compliance officer at The CMI Group, Inc. in Dallas. He writes: "I could not have accomplished all that I have if not for my decision to get involved in the honors program. I truly believe that the students who choose to go down that path will receive as good of an education as anyone attending an Ivy League institution."

**BRIAN PLATT** (B.S. in biology with minors in mathematics and general business, *summa cum laude*, '12) is pursuing a doctorate in dental surgery at the University of Tennessee Health Science Center in Memphis, Tenn. Right, Platt and a young patient on a dental mission trip to Jordan.



**JOHN MILLER** (B.S.I.E., *summa cum laude*, '09) spent three years conducting business and cultural research in India before returning to pursue his master's degree in industrial engineering. He writes about his undergraduate mentor, John English: "I developed a deep friendship with Dr. English and his family and we now consider each other and our families close friends. This led me to return and pursue a master's degree as a graduate research assistant under Dean English."

Updates continued on page 34



**SHANNON WALLACE NORMAN** (B.L.A., *magna cum laude*, '08) is an associate landscape architect in the Fayetteville, Ark. office of The Ecological Design Group, Inc. Recent projects include the reconstruction of Ft. Curtis and design of Freedom Park, an interpretive park that highlights the contraband camps of the Civil War; both are located in Helena. She also worked on the master plan and expansion of the Arkansas State Veterans Cemetery in North Little Rock (see plan above), and helped to develop a Wildlife Observation Trail at the Little Rock headquarters of the Audubon Society.



## Alumni Updates

**MARIE MORRIS** (B.S. in biology and Spanish, *summa cum laude*, '12) is pursuing a medical degree at Washington University School of Medicine in St. Louis.

**AARON MOULTON** (B.A. in Spanish/Latin American studies and mathematics with minors in history and political science, *cum laude*, '07), currently a doctoral academy fellow and history student at the U of A, has been awarded a Dissertation Year Fellowship from the Harry S. Truman Library Institute. The \$16,000 fellowship will allow Moulton to focus on writing his dissertation, "The Dictator's Backyard: Rafael Trujillo and the Dawn of the Cold War in the Greater Caribbean Basin, 1944-1954."

**SABA NASEEM** (B.A. in journalism/ Middle Eastern studies and French, *magna cum laude*, '13) has made a fast start on a career in journalism. Upon graduation she interned at the



**ROSALEE REESE** (B.S. in biology with minor in animal science, *summa cum laude*, '12) recently completed a land management internship at the Bureau of Land Management in Safford, Arizona. There she worked on projects such as native fish monitoring and habitat improvements, native plant restoration, and community outreach and education. To learn more about her internship, read Reese's blog entries at [www.clminternship.org](http://www.clminternship.org). This fall she began graduate studies in biology, focusing on aquatic conservation, at the University of New Mexico.

Left: Reese conducts native fish monitoring at Upper Bonita Creek. She's holding a very large adult Sonora Sucker, native to Arizona.

*Washingtonian* magazine, and currently works as an editorial assistant for *Smithsonian Magazine* and assistant editor at the *Morocco World News*.

**SPENCER PILAND** (B.S.B.A. in finance, with minor in accounting, *summa cum laude*, '08) is currently based in Washington, D.C. and is the director of financial planning and analysis at LivingSocial, an online marketplace that offers district-based daily deals.

**EMILY ROGERS** (B.A. degrees in history and political science, *cum laude*, '09), completed her J.D. at the University of Baltimore School of Law and is currently employed there as assistant director of the Law Career Development Office.

**MATT SEUBERT** (B.S.B.A. in economics, *summa cum laude*, and B. A. in political science, '13) is director of client services at DataRank, a Fayetteville-based start-up company specializing in the analysis of online conversation about consumer products. In this position he leads all research and recently hired two honors graduates as client service analysts – **JAMES BROWN** (B.A. degrees in history and international history, both *summa cum laude*, '14) and **LAUREN HAYES** (B.A. in international



**BLAKE STRODE** (B.A., Spanish and B.S.B.A., economics, *magna cum laude*, '09), now in his final year at Harvard Law School, is getting hands-on legal experience in Washington, D.C. He worked in the Dept. of Justice, Civil Rights Division in the Voting Section in summer '13, and this last summer was a legal intern with Illinois Senator Dick Durbin's judiciary committee staff.

Above: Blake Strode with fellow Bodenhamer fellows Shannon Sanders (left) and Rachel Lee reunited in Washington, D.C.



**AUSTIN REID** (B.A. in English with a minor in Spanish, *summa cum laude* '12) recently completed a two-year Teach for America commitment teaching Spanish at Southwest High School in Kansas City, Mo. He served as school operations manager at the 2014 Teach for America Tulsa Institute last summer, and began a new job teaching Spanish at the Harlem Village Academies in New York City in August. He also has completed teaching certification at the University of Missouri, St. Louis, and plans to apply to M.P.P./M.B.A. programs for Fall 2015.

Above: Reid and his students at Southwest High School.

relations, *magna cum laude*, '14). Seubert was recently selected as one of *Northwest Arkansas Business Journal's* "Fast 15."

**TALHA SHEIKH** (B.S.B.A., *cum laude*, '03) is a senior manager of audit services with the DeVry Group in Naperville, Ill.

**KATIE STRIKE** (B.A. in international relations, *magna cum laude*; B.A. in Spanish/Latin American and Latino studies with minors in anthropology and political science, '13) is pursuing a law degree at the University of Pennsylvania Law School. She spent the summer working with the Department of Education's Office of Civil Rights in Philadelphia, Pa.

**STACY TAN** (B.S.I.B. with minors in international economics and Chinese, *magna cum laude*, '11) is the international marketing manager at TY North America, LLC, a Bentonville-based vendor. She and two other former U of A classmates are developing a mobile application called Lynxus, a social news app providing access to world events through first-person, unfiltered media shown in real time. She was recently chosen as a member of the *Northwest Arkansas Business Journal's* "Fast 15."



**NASTASSIA TAYLOR** (B.S.I.E. with minor in mathematics, *magna cum laude*, '11) completed a master's degree in industrial engineering at Northeastern University and is now a process improvement coordinator at UMass Memorial Health Care in Boston, Mass.



## Shining a Light on Cancer Detection

*In this excerpt from the Honors College blog, honors biomedical engineering student Gage Greening shares his work to create a new, non-invasive tool for early diagnosis of oral cancer.*

I began my undergraduate career with only a vague conception of what college really meant. I wanted to make something of myself, to challenge myself, but I didn't know how. I've always had a diverse set of interests, including the life sciences, math, athletics, and art, especially sketching and filmmaking. But how do I combine these passions to enrich my college (and life) experience? This became my goal.

It was the beginning of my junior year that the biomedical engineering major was created. Along with this new major came the addition of several new biomedical engineering faculty members, including Dr. Timothy Muldoon, the principal investigator of the Translational Biophotonics and Imaging Laboratory. Put simply, the lab uses image analysis to diagnose disease, primarily cancer. It's the combination of art and science in perfect harmony.

My research is focused on the development of a non-invasive diffuse reflective microendoscope, henceforth referred to as DRME, which could improve the early detection of cancer in epithelium, such as the lining of the oral cavity or gastrointestinal tract. Improvement in early detection methods should significantly increase survival rates. In practice, an illumination fiber will deliver infrared light to a small area of epithelial tissue, and a camera will capture the light that scatters back out of the tissue. The amount of light that scatters back out, called diffusely reflectance, is critical in determining whether abnormalities exist beneath the surface of the epithelium. Cancerous and precancerous tissue will scatter back less light than normal, healthy tissue. Therefore, the goal of the DRME is to provide clinicians with information about abnormalities that exist beneath the visible surface of epithelial tissue, especially in the oral cavity.

As of now, my research can be divided into two goals. The first goal is to create optical tissue phantoms. Because this is a new approach to cancer detection, we cannot jump right in to testing our imaging system on human subjects. Therefore, I will be creating "phantoms," thin gel-like layers that will replicate the optical properties of epithelial tissue and will provide a means of verification for the DRME. Currently, I'm designing a procedure that will allow me to build phantoms with specific depths (down to a tenth of a



millimeter!) to replicate the different layers in actual epithelial tissue.

This brings me to the second goal of my research, to run computer simulations as a means of modeling light transport through epithelial tissue. Once I've fine-tuned the computer simulation, we'll be able to make final adjustments to the DRME imaging system. These final adjustments will ensure maximum light delivery to the optical phantoms, so that our data is reliable and reproducible. Then we'll be one step closer to testing the DRME on human tissue, although this is still a long way off.

*Greening's work was supported by Honors College research and travel grants. To hear more from him and to read other student accounts of research and study abroad, visit [honorsblog.uark.edu](http://honorsblog.uark.edu).*



*I wanted to make something of myself, to challenge myself, but I didn't know how.*

**GAGE GREENING**  
honors student

The Honors College  
244 Ozark Hall  
1 University of Arkansas  
Fayetteville, Arkansas 72701-1201  
honorscollege.uark.edu

Nonprofit Org.  
U.S. POSTAGE PAID  
Permit No. 278  
FAYETTEVILLE, AR

**On the Cover:** Grace Heymsfield, an All-American distance runner, Honors College fellow and senior dietetics major in the Dale Bumpers College of Agricultural, Food and Life Sciences, congratulates a teammate at the SEC Outdoor Championships last May. For more on Grace and other honors athletes, see pp. 14-19. Photo by Elliott Hess/UK Athletics.



**Last look:** Last year the Honors College awarded more than \$1 million in grants to support research, service, and study around the globe. Top row, l to r: Kelsey Ferguson captured Mt. Lengai, Tanzania; Alexander Tingquist atop Xunantunich ruins, Belize; Amber Ament visited the market in Besançon, France; Andrew Casey in Cinque Terre, Italy. Middle row, l to r: Kiefer Dooley captures a performance in Sapporo, Japan; Armin Mortazavi with patient in Dangriga, Belize; Hanna Holden and friend in Copenhagen, Denmark; Kaitlyn Nolker with Datoga woman, Tanzania. Bottom row, l to r: Samantha Linard snaps Stockholm skyline; William Melendez-Suchi with friends in Mozambique.

