


**CELEBRATING
50 YEARS**
**1965-
2015**



SEPTEMBER 2015 NEWSLETTER

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Ogden Faculty Complete Program in South Africa



Five OCSE faculty members joined colleagues from two other WKU colleges and the Office of International Programs on an academic exploration of South Africa during the summer months. Faculty in attendance were Mark Cambron (Engineering), Fred DeGraves (Agriculture), Michael Stokes (Biology), Michael Smith (Biology) and Phil Lienesch (Biology).

The trip was part of the Zuheir Sofia Endowed International Faculty Seminar (ZSEIFS) which brings together faculty from different disciplines to collectively and individually investigate a target country. During academic year 2015-2016, WKU will celebrate South Africa through course content, guest speakers, artistic performance, food, and study abroad opportunities.

Dr. Michael Stokes led the group in visits to three partnering universities: Nelson Mandela Metropolitan University, University of the Western Cape, and University of Limpopo. WKU faculty met with colleagues at these universities to learn about South African research and education, to investigate potential research collaborations, develop study and research abroad opportunities, and to incorporate South African content into their WKU courses.

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Photo above by Clinton Lewis





Alumni Focus: Naomi J. McAfee



The first woman to graduate with a degree in Physics from WKU ('56), Naomi McAfee distinguished herself as a pioneer throughout her engineering career. She started as a Chemistry major at WKU, then switched to Physics.

During her 38-year tenure at Westinghouse, McAfee played a lead role in a number of progressive activities both within and outside the company. She became the first woman Supervisory Engineer at Westinghouse and was one of the most respected and well-liked members of the management team. Through her excellent technical background, work ethic, and respect for people, McAfee persevered over the years to successfully change the culture of the entire Westinghouse design organization which included more than 5,000 engineers.

She has served as an advisor and consultant to the Department of Defense along with the Air Force and Army. In 1982 she was appointed to serve a three-year term on the President's Commission on the National Medal of Science.



Ms. McAfee has many fond memories of her time at WKU. She generously supports the Physics and Astronomy Department as well as the SKyTeach program.

Research Highlight



Dr. Michael Smith, at left, and Dr. Kevin Williams, at right, have been awarded an Academic Research Enhancement Award (AREA) grant from the National Institutes of Health (NIH) to discover new anti-cancer platinum compounds with reduced side effects.



In July, chemistry professor Kevin Williams and biology associate professor Michael Smith received a \$414,321 grant from the National Institutes of Health to discover

new anti-cancer platinum compounds with reduced side effects. Current platinum-based chemotherapy drugs are highly ototoxic causing the destruction of inner ear

sensory hair cells and hearing loss. The goal of this project is to find platinum complex drugs that are toxic to cancer cells without causing hearing damage.

The grant will support at least three undergraduate research assistants and two graduate students as well as a post-doctoral researcher in performing cutting-edge research. This collaborative effort is also supported by an Institutional Development Award (IDeA) from the National Institute of General Medical Sciences of the NIH under a NIH-INBRE grant.

Faculty Leadership Year

The Faculty Leadership Year is a specially designed agenda of learning experiences that will enhance the leadership skill of faculty members who wish to advance their careers into administration. Select faculty members spend a year of intensive study and experience the elements and contexts of leadership in both on- and off-campus learning exercises. These learning exercises equip faculty members with an array of leadership perspectives from which to examine and confront the opportunities and

challenges of higher education leadership.

Dr. Mark Doggett (Architectural and Manufacturing Sciences) and Dr. Michael Carini (Physics and Astronomy) were selected as FLY fellows for the 2014-2015 academic year.

Dr. Doggett cited the opportunity to work and interact with faculty and administrators of which he does not ordinarily have contact - one strength of the program. The



Dr. Mark Doggett



Dr. Michael Carini

fellows also had the chance to meet with and gain insight from state leaders in higher education.

The Ogden Faculty Leadership Year Fellows for 2015-2016 are Dr. Josh Durkee (Geography & Geology), Dr. Michael Smith (Biology), and Dr. Stuart Burris (Chemistry).

South Africa *(continued from page 1)*



In addition to these partner schools, the group visited several other sites important to South African economy or history. These included Lexington, KY based corporation Alltech's African headquarters in Stellenbosch and Stellenbosch University to learn about the economics of South Africa's agricultural sector; the Embassy of the United States in Pretoria, the greater Kruger National Park, and the Cradle of Humankind.

The faculty members are already incorporating South African content into their courses and developing extramural grant proposals to initiate or continue research in South Africa.

Next year the ZSEIFS will focus on South Korea and Ogden College is hopeful to be heavily involved in that trip as well.



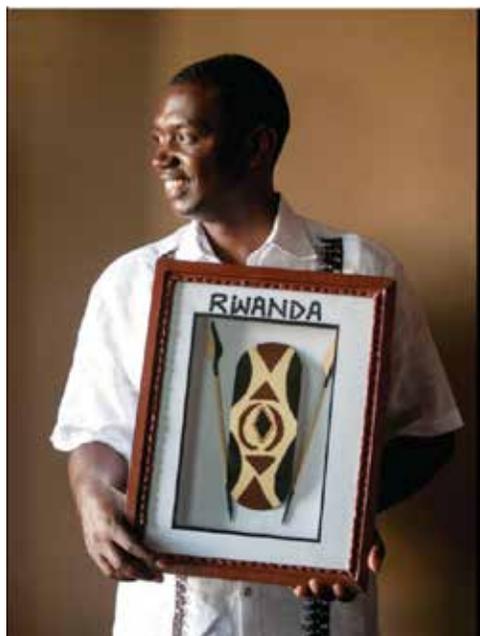
Twenty-eight hundred people from 68 countries attended the Alltech Rebelation conference in Lexington, KY this past May. The conference merges science, agriculture, entrepreneurship, business and marketing.

Pictured above manning the joint WKU/Alltech booth are Mr. Roger Dennis (Agriculture), Agriculture Department Chair Dr. Linda Brown, Dr. Cathleen Webb (Ogden College Associate Dean of Research), and Dr. Hunter Galloway (Agriculture).

Said Dr. Webb, "Rebelation was an amazing technical and culturally enriching international experience that we all enjoyed very much."

Dr. Dominique Gumirakiza, Assistant Professor of Agricultural Economics, was raised in a rural part of Rwanda, the most densely populated nation in Africa and one of the most densely populated in the world. Education completely transformed his life, and he now finds himself living in Bowling Green, KY with his family.

Dr. Gumirakiza was featured in the latest issue of *WKU Spirit* magazine. For the complete story, visit <http://alumni.wku.edu/s/808/index.aspx?sid=808&gid=1&pgid=1275>.



WKU Agriculture is continuing research with industrial hemp in cooperation with the Kentucky Department of Agriculture's Hemp Pilot Program. Brett Maxwell, a graduate student in the Agriculture Department, is conducting research evaluating industrial hemp tolerance to several herbicide chemistries. This information will assist industrial hemp producers in formulating best management practices for weedy pest if the crop becomes legal to grow in Kentucky. This research is being conducted at WKU's Agriculture Research and Education Complex located on Nashville Road in Bowling Green.



WKU Horticulture students visiting a Japanese Garden at the Irish National Stud & Gardens in County Kildare, Ireland this past June.



Machining Techniques May Reduce Cost of Titanium Medical Implants



Dr. Muhammad Jahan is leading a team of researchers in a study to explore new machining techniques which may reduce the cost of titanium alloy medical implants, while also improving ease of fabrication. His team includes undergraduate student Bradley Logsdon (above middle) and graduate student Qinchuan Du (above right).

During this study, the students are trained in a variety of critical laboratory techniques including scanning electron microscope, energy dispersive X-ray spectroscopy, atomic force microscopy, and X-ray diffraction analysis.

The reduction of cost and ease of manufacturing will make the implants more accessible to patients and enhance the growth of implant industries. Above all, it will improve the quality of life for those individuals with disabilities.

- story by Austin McKinney, posted 8/4/15 in Highlights



Faculty from the AMS Department helped design a natural playscape at Parker Bennett Curry Elementary School. Central to the design is a school garden. The school received a \$2,000 grant from the Whole Kids Foundation to build the edible plant-

ing garden. In addition to the funding, the school received seeds from High Mowing Organics and a School Garden Resource Guide with a wealth of information on resources and how to build and sustain gardens to ensure long term success.

“The school is very excited to have received the grant from the Whole Kids Foundation which enables them to begin a project that they have been planning and working on for the past year,” said Assistant Professor Shanaz Aly.

The WKU CIT program was recognized as number thirteenth in the country in “Outstanding Online Bachelor’s in Information Technology Program” by BestColleges.com. BestColleges.com reviewed over 500 not-for-profit, online programs and WKU rose to the top for 2015.

WKU’s online bachelor’s programs are ranked #2 by US News and World Report’s Best Online Bachelor’s Programs. See www.bestcolleges.com/features/best-online-bachelors-information-technology-programs/ for more information.

Looking for a fall internship or job opportunity?

Take a look at the AMS Job Opportunities website for current job openings in Industry!

<http://wku.edu/ams/studentjobopenings.php>



Empowering Young Minds

Meet the Biology Graduate Students In Residence

Front row: Richard Dawson, Chaise Gilbert, Chris Banotai, Mitchell Schooler, Chris Fields, Dane Flinchum, Kenny Anderson, Mayank Kapadia
 Back row: Matt Buchholz, Meghan Parsley, Qianna Xu, Jesse Nugent, Amelia Smith, Laken Cooper, Chase Ladue

Making A Difference...W rldwide



our students succeed. The formal picture (below) was taken following discussions at the University of Nairobi regarding a new MOU between the two universities; this MOU will continue to strengthen our research in cardiovascular disease through collaboration with the Department of Medical Physiology.
-Dr. Nancy Rice

Here are some pictures from my most recent trip to Kenya. The graduate student, Aiste Dobrovolskiate (above) was partially supported by OCSE Dean's office, the Department of Biology, and the Graduate School. So thank you all for your generosity in helping



Graduate student Chaise Gilbert (above) was awarded an American Society of Ichthyologists and Herpetologists Edward C. Raney Award for 2015! This award is a competitive grant awarded annually to a few select students for ichthyological research. Within the

ASIH, these awards are considered quite prestigious. Congratulations, Chaise!

Dr. Cheryl Davis, University Distinguished Professor in Biology, has been named Interim Associate Provost for Research and Creative Activity. She will begin her new position on September 1st.



Dr. Davis is in her 25th year at WKU and has compiled an outstanding record as a faculty member with strong research credentials and a well-earned reputation for encouraging student research, said David Lee, Provost and Vice President for Academic Affairs.

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WKU students John Biechele Speziale and John Logan Reynolds, pictured at right, conducted chemical research for ten weeks this summer at Changwon National University in South Korea.

The Chemistry majors' research was funded through a NSF International Research Experience for Students grant awarded to Chemistry Professors Moon-Soo Kim and Eric Conte. The projects involve preparing carbon, zinc and silver based nanoparticles that have luminescent properties and will be used for applications in analytical chemistry.

"I think that being a part of this trip has been an amazing opportunity for me to learn about a different culture while I further my love of Chemistry," said Speziale.

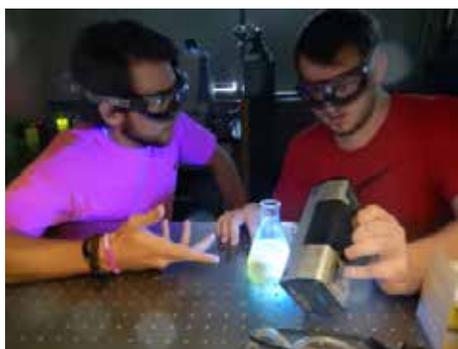
Reynolds echoed the sentiment. "This grant has taken me places I never thought I would go while allowing me to pursue one of my passions - learning new science."



programs this fall.

Hannah Pennington, a Chemistry and Biology double major and Math minor from Union selected the Medical Scientist Training Program at the University of Illinois-Chicago.

Brandon Farmer, a Chemistry and Biology double major and Spanish



John Biechele Speziale and John Logan Reynolds work on research in South Korea.

minor from Lexington is attending the University of Kentucky.

This marks the first year that two WKU graduates will continue their education in MD/PhD programs, according to Dr. Ken Crawford, Associate Dean of Ogden College and Director of the Health Professions Advising Center.

The largest brewing system to be located at a university, and the first in Kentucky, was delivered to the Center for Research and Development on June 10 (see photo below right).

Dr. Cathleen Webb, Associate Dean for Research, and Dr. Andrew McMichael, Assistant Dean of Potter College of Arts & Letters, are working with Alltech Inc. of Lexington. Alltech is leasing space in the Center to start a craft brewing operation. Alltech will develop a lab for students so they can gain

hands-on experience and conduct research.

In addition, Drs. Webb and McMichael are developing the curriculum for a brewing and distilling program and are planning to present it to the faculty this fall. The program would be co-directed by Ogden and Potter colleges.

While the Alltech brewery operation and the curriculum are independent, they will work together to make the program better and unique, Dr. Webb said. Having the student lab located with the brewery and next to other labs in the Center, such as the Water Quality Lab, will put the program steps ahead, Dr. Webb added. The brewery is expected to begin operations this fall.

Congratulations to two students who worked at VALSPAR as interns this past summer. Daniel Taylor Mulert and Michael Ballentine, both Chemistry majors, were each awarded a \$1,300 scholarship from the VALSPAR Scholarship Fund.

Brewery equipment was delivered on June 10th to WKU's Center for Research and Development. (Photo by Bryan Lemon of WKU)



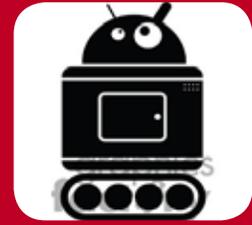


Dr. Farhad Ashrafzadeh, pictured above, received the 2015 Ogden College of Science & Engineering Junior Faculty Research Award.

Dr. A, as his students call him, is an excellent instructor who brings the real world into the classroom every day. He earned his Ph.D. in Electrical and Computer Engineering from the University of Calgary in 1996. In 1997 he began a long and productive career with the Whirlpool Corporation. His expertise is in the area of electric machines and drives and their efficiency. He has been awarded an astounding 80+ patents granted and/or pending. WKU was fortunate to hire him as an assistant professor in 2012.

Dr. A takes the initiative on many occasions to help out his students. Recently, he approached a textbook publisher about the size and cost of a particular textbook he requires his students to use for class. The students only needed six chapters of the fourteen chapter book. The book publisher eagerly

addressed Dr. A's concerns. A custom edition was printed for WKU. The book size and cost were drastically reduced - from \$190 to \$73 (see photo below). The students were extremely happy with the results. Great work, Dr. A!



Kentucky Bluegrass High School Robotics Competition
November 7, 2015

visit:
www.wku.edu/ogden/ogdenout-reachupcomingeventscalendar.php

WKU Finishes 17th Overall in 2015 National Concrete Canoe Competition

After three sweltering days at Clemson University, the concrete canoe team finished 17th in the National Concrete Canoe Competition.

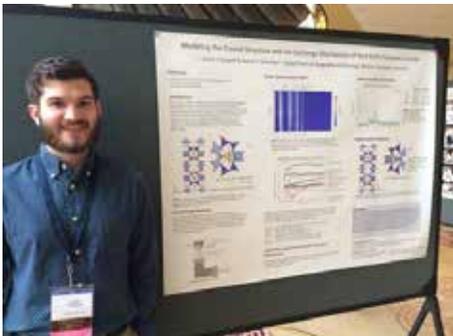
Concrete canoe team members include Dylan Jones of Berea; Kent Jones of Somerset; Lucas Guinn of Monticello; Andrew Keightley of Destrehan, LA; Jackson Daugherty of Morgantown; Elijah Garcia of Chino Hills, CA; Jacob Cowan of Columbia; Michael Pickett of Radcliff; Joe Owle of Cherokee, NC; Thad Billingsly of Scottsville; Clintyn Weimer of Mt. Vernon, IN; Nick Beasmore of Lawrenceburg; Rachael Wilson of Elkton; Kayla Frye of Nancy; and Hilary Richards of Johannesburg, South Africa.

"I am incredibly proud of all of these dedicated young men and women," said Professor Matthew Dettman, concrete canoe team faculty advisor. "They worked hard to make it to the national championships and a top-20 finish is something they can all be very satisfied with."



Caleb Chappell of Crestwood (pictured below), a junior in the Geology program, was awarded the International Union of Crystallography (IUCr) Pauling Poster Prize at the annual American Crystallographic Association meeting July 25-29 in Philadelphia, PA.

The Pauling Poster Prize is awarded to young researchers in honor of Nobel Laureate Linus Pauling, a pioneer in crystal structure research. Caleb's poster was titled "Modeling the Crystal Structure and Ion Exchange Mechanisms of Rare Earth Elements in Zorite."



WKU graduate student Jonathan Oglesby (pictured below right) is using eye-tracking technology to investigate and improve water literacy in rural areas along the Niger River in Africa.

Tobii Technology, an eye-tracking company headquartered in Sweden, recently selected graduate thesis research undertaken by Jonathan under the direction of Dr. Leslie North as a feature story to showcase on its website.

Oglesby's research centers on the use of eye-tracking technology to investigate and improve water literacy in rural areas of Niger, South Africa, through visual learning design.

WKU Storm Chasers

Dr. Josh Durkee and his storm chasing students have traveled 44,000 miles since 2010. Each spring a group of eager students led by Dr. Durkee track storms across the Great Plains during a hands-on learning experience.



This year's group kept a blog of their adventures. "In summary the group traveled 7,191 miles through nine states over the time span of two weeks. We observed several types of storms such as high precipitation supercells, low precipitation supercells, classic supercells, and squall lines. We also saw accumulated hail and two tornadoes! Although forecasts were difficult and frustrating at times, the trip itself was successful and enjoyable for the entire group and proved to be a good learning experience for everyone."

To see some breathtaking photos visit @wkustormchase on Twitter.

"This amazing research is another example of the creative ways in which geoscientists are working to understand more clearly the human-environment resource challenges faced by communities globally."

- Dr. David Keeling, Department Chair, Geography & Geology Department



During the President's Opening Convocation held Friday, August 21st, Mathematics instructor Robin Ayers was granted the 14th Spirit of Western Award.

The award recognizes an individual who represents enthusiasm for WKU, loyalty to the institution and principles of the WKU experience and its motto "The Spirit Makes the Master."

Ayers, a WKU graduate, has been in the department for 24 years and never fails to go over the top with all-things WKU. Her office is covered with WKU decorations and team posters signed by players she has had in class. The pride and commitment she has for WKU shows on her face, in her voice, in her classroom, and in her office.

Robin Ayers Honored with Spirit of Western Award



Photo by Clinton Lewis

Like Free Food? Like Movies? Like Math? Like Fun?
Then, like, come join us for MATH MOVIE NIGHTS!

See our Facebook page for days and times: facebook.com/wkumath
 Sponsored by WKU Math Club and Pi Mu Epsilon

Math Department student worker Haley Reed in Budapest, Hungary.



Math Department table at DiscoverWKU in Hopkinsville, KY.





Professor Sanju Gupta (at left) gave an invited and plenary speech this past July at the ICCE23-Nano Conference held in Chengdu, China. Her talk was titled “Multifunctional Graphene-based Hybrids for Alternative Renewable Energy Sources.” While there she enjoyed the Chengdu city located in the Sichuan province.

Public Telescope Viewing at the WKU Astronomical Observatory

Shortly after sunset on the second Wednesday of every month, WKU astronomers offer the public an opportunity to observe the heavens through telescopes on the roof of Thompson Complex Center Wing. Please dress accordingly. There is no charge for admission; simply meet in the lobby of Thompson Complex. In the event of bad weather, a brief indoor program will be presented. Children twelve years of age and under must be accompanied by an adult.



“Finding Your Way Around The Autumn Skies”

Show runs until 10/11/15.

For show days and times visit:
www.wku.edu/hardinplanetarium

Hardin Planetarium provides a special location for memorable events. Though the Planetarium’s mission is educational, the building’s iconic design and location provide an attractive space for distinctive occasions. A regular schedule of birthday parties, corporate retreats and even wedding proposals take place under its star chamber dome.

Interested?
Contact the Planetarium at
270.745.4044.



Students from Dr. Sanju Gupta’s Multifunctional Nanomaterials research group working on research projects relating renewable alternative energy.





Dr. Amy Brausch, pictured at left, received the 2015 Ogden College of Science & Engineering Junior Faculty Research Award.

Dr. Brausch is also the recipient of a KBRIN - IDeA Investigator Development Award for her research on “Development of suicide and self-injury in adolescents.”

Dr. Brausch’s research interests fall under the broad category of adolescent and young adult self-harm and risk-taking behaviors. Specifically, she studies risk and protective factors for suicide, as well as non-suicidal self-injury. She is especially interested in the role of the body in self-harm, and how factors such as body image, body protection, and body attitudes are related to an individual’s propensity to inflict harm on oneself. Other research has investigated the overlap between self-injury and risk-taking behaviors such as substance use, unhealthy eating and exercise habits, and self-asphyxial behaviors (known commonly among adolescents as “the choking game”). As a clinical psychologist, she is also interested in the assessment, treatment, and prevention of suicide, non-suicidal self-injury, and eating disorders.

A few years ago, WKU brought the idea of combining exercise with bingo to assisted living facilities throughout the Bowling Green area. Dr. Matthew Shake is working with Dr. Jason Crandall (Kinesiology, Recreation and Sport) on “Bingocize”, a game-like exercise program for older adults. The experience is delivered via a digital application created by WKU Computer Science professor, Dr. Guangming Xing. The app is now being piloted in service centers to determine its efficacy in improving physical and mental functioning in older adults who are enjoying the game (see photo below).

This summer eight students from colleges and universities around the country came to WKU to participate in Psychological Science’s **Research Experiences for Undergraduates** program. This NSF-funded program provides undergraduate students a unique opportunity to gain hands-on research experience while furthering our understanding of human behavior and cognition.

The theme of REU is the integration of technology into psychological research. This theme provides students with exposure to cutting-edge technology while they work on projects that contribute to both basic and applied science.

During the program, students worked with WKU faculty members on projects as diverse as studying the role of cardiac physiology in emotion regulation in infants to improving the practice of using Facebook profiles in hiring decisions. The summer ended with a successful mini-conference where program participants presented their findings to university faculty and staff.



Planting Seeds for a Cure



Dr. Chandra Emani holds a basil plant in his lab.

Assistant professor of Biology at WKU Owensboro, Dr. Chandra Emani, is looking at the use of plants in the battle against cancer.

He told the Owensboro Messenger-Inquirer that he hopes to find a potential cure for the disease using plant-based medicines. Currently he and his research team are working with basil, ginger, fresh tobacco leaves, and neem - a plant common in Asian countries.

According to Dr. Emani, those particular plants have metabolites in them, which have been shown to have some action against cancer. Emani said individual extracts from the plants have been tested. Those are being tested against pancreatic, colon, lung, cervical and breast cancers, and "we saw they

have an action across the board."

Dr. Emani is doing lab tests on a "cocktail" that combines the extracts. He said it usually takes about five years for required testing and clinical trials until a new treatment is approved. Another option he's looking into is having the "cocktail" of extracts approved as a complementary dietary treatment to reduce some of the side effects of chemotherapy. That option could be approved in about two years.

Dr. Emani was recently awarded a \$20,000 National Science Foundation-EPSCoR-RSP (Research Scholars Program) grant. This is the second time that Dr. Emani has been awarded a grant with this organization.

The research proposal is "Phytoremediation strategy utilizing transgenic stone pine to dispose salt waste water and crude oil contaminants from oil field sites." The research work involves planting stone pine plants at oil well sites to dispose both salt water and crude oil contaminants at oil fields, an environmental cleaning up program using plants. Dr. Emani will be collaborating with PIP Industries LLC, an environmental research based company in Owensboro, Case oil Drilling Company, Countrymark oil company and Atmos Energy.

Two undergraduate students Hanady Adam and Ginger Gilbert will be trained in plant biotechnology with scholarships through this grant and will have an opportunity to present their work at the annual international conference organized by the American Society of Plant Biology.



WKU Owensboro biology faculty member Chandra Emani's plant biology lab is located at the Center for Business and Research in Owensboro. Photos by WKU photographer Bryan Lemon.

