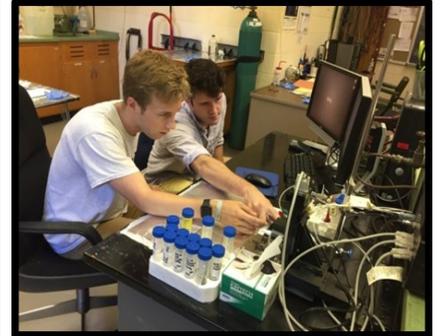
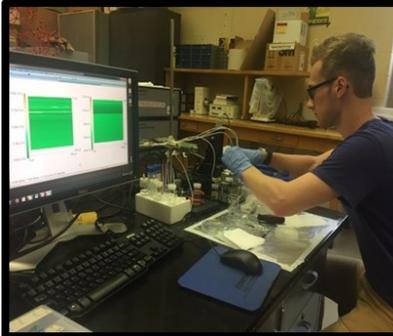
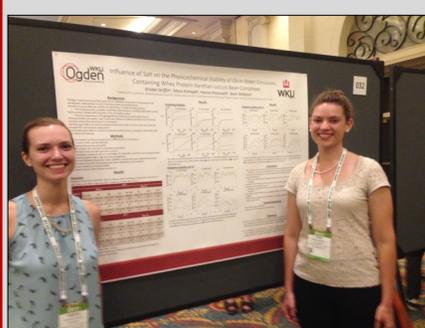
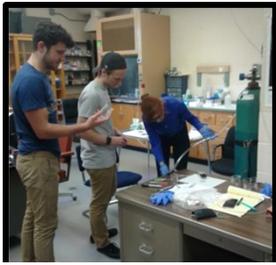




Kentucky NSF EPSCoR Undergraduate Research Fellows and WKU students Alex Henson (sophomore, physics and math major) and Brendan Evans (junior, physics and math major) performed research this summer involving graphene membranes and extensive characterizations of its properties in regard to its ability to nanofilter and detoxify water of pollutants. Understanding that clean water is vital for life,



food production, and industry and manufacturing application, these student researchers utilized classroom basics and concepts early in their academic careers. Henson states that performing research “makes me feel purposeful” and Evans concurs, “The project this summer has been helpful in showing me what it means to be a researcher at the cutting edge of science.” Henson and Evans work in the laboratory of Dr. Sanju Gupta, Associate Professor in the Department of Physics & Astronomy.



WKU undergraduate researchers and Research Scholars Program fellows, Kristen Griffen and Mara Krempel, investigate the impact of environmental stresses (ionic strength and pH) and selected polysaccharide complexes on the oxidative stability of whey protein isolate(WPI)-stabilized emulsions to allow incorporation of omega-3 polyunsaturated fatty acids ( $\omega$ -3 PUFA) into food products. The effectiveness of polysaccharide-polysaccharide-WPI complexes on the stability  $\omega$ -3 PUFA in emulsions are assessed using physicochemical analyses (peroxide value and TBARS, particle size, viscosity, creaming index,

and transmission electron microscope). They presented their research findings at the 253rd American Chemical Society National Meeting in San Francisco, CA and the Institute of Food Technologists Annual Meeting in Las Vegas, NV. Griffen and Krempel work in the laboratory of Dr. Hanna “John” Khouryieh, Associate Professor of Food Processing & Technology in the WKU School of Engineering & Applied Sciences.



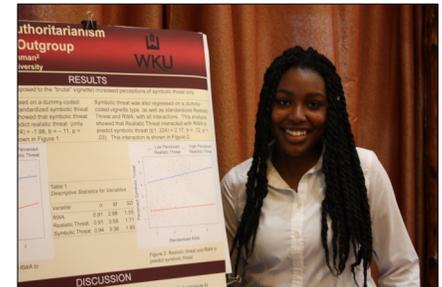
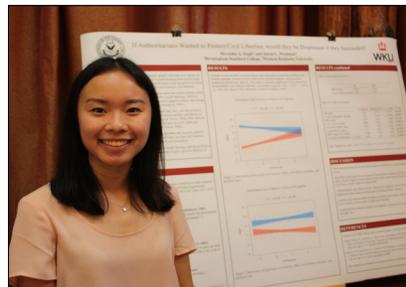
## What is the Kentucky NSF EPSCoR?

Kentucky’s National Science Foundation Established Program to Stimulate Competitive Research (KY EPSCoR) exists to stimulate sustainable improvements in the Commonwealth’s R&D capacity and to advance science and engineering capabilities for discovery, innovation, and knowledge-based prosperity.

[Learn more about the KY NSF EPSCoR.](#)

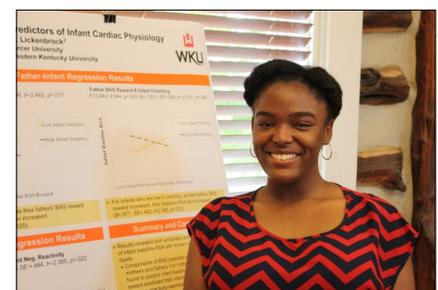
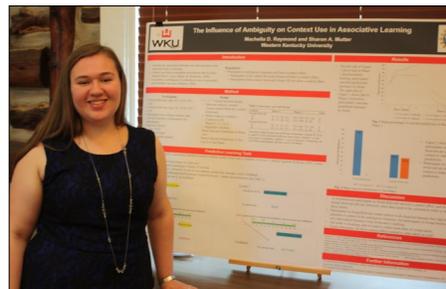
## 3rd Annual Research Experience for Undergraduates (REU) Program Conference

*Advancing Psychological Research with Technology*  
Western Kentucky University/Summer 2017



2017 REU Research Students (from top left): Danny Chon, Mercedes Engle, Alexis Jones, Karli Molognoni, Machella Raymond, Peter Schultz, Kathleen Springer, and Kennedy Wesley

Eight undergraduate students from seven universities spent ten weeks (May 30—August 4, 2017) on the WKU campus, working closely with a WKU faculty mentor on research utilizing technological advances in the areas of clinical, cognitive, developmental, educational, industrial/organizational, and/or social psychology. These undergraduate researchers participated in developmental workshops and activities related to topics such as ethics, research methods, statistics, computer software, and presentation skills. At the conclusion of the program, students presented their findings at a mini research conference to WKU faculty and staff. Complete information about these students, their research projects and WKU mentors is available [here](#).



[Learn more about the National Science Foundation REU Program at WKU.](#)

WKU undergraduate KY NSF EPSCoR Research Fellows Allison Rinne (psychological sciences major) and Dixi Secula (biology major) collected data over the summer from members of the Bowling Green community to examine how one's ability to detect emotion on faces presented in one's peripheral vision changes as we grow older. Their study included behavioral responses to the



emotional face stimuli as well as electrophysiological recording of cortical brain activity using a 128-electrode high density EEG array. Allison and Dixi have been actively processing the behavioral and electrophysiological data in order to link age differences in behavioral performance to possible age differences in the brain's method of analyzing emotion cues. Rinne and Secula's research is done under the direction of Dr. Andy Mienaltowski, Associate Professor in the Department of Psychological Sciences.

## DID YOU KNOW:

KY NSF EPSCoR (AY 2016-2017) and WKU:

- Ogden College faculty were awarded 9 research scholar grants supporting 15 research scholars, for a total of \$133,820 research dollars.
- Funded an additional 3 research enhancement grants, 1 research start-up grant, and 4 outreach grants.
- TOTAL FUNDING from KY NSF EPSCoR for WKU in AY 16-17 was \$325,988



For FY 11-15, OCSE faculty submitted 158 RCAP proposals to ORCA, of which 46% were funded, for a total of \$868,461.30 awarded.

External Proposals: 126  
# of Published Articles: 64  
# of Posters: 136  
# of Books: 1

External Awards: 40  
# of Presentations: 152  
# of Creative Works: 3  
# of Equipment: 13

**# of Students: 295**

## Barren River

Undergraduate KY NSF EPSCoR Research Fellow Kaily Scott took part this summer in a hands-on research experience conducted in Kentucky on the Barren River. Scott, who is pursuing a B.S. degree in geology, processed Digital Elevation Model data and extracted a total of 311 longitudinal river profiles within the Green River Basin, and analyzed and interpreted their geomorphologic parameters. She also conducted a two-week field survey in accessible rivers within the basin to investigate knickpoints and their geologic controls. The goal of this project is to understand the active tectonic activity (recent and geologically active processes affecting Earth's surface) within the Green River Basin by quantitative geomorphology extracted from Digital Elevation Model data and GIS-based vector data of rivers using MATLAB codes and image processing.



Kaily plans to present the initial results at the 2017 Geological Society of America annual conference in Seattle, Washington. Her research was done under the guidance of Dr. Nahid Gani, Assistant Professor in the Department of Geography & Geology.



*Kaily Scott conducting a field survey at the Barren River..*

## Mammoth Cave National Park

Undergraduate researcher Caitlyn French, a senior from Rutledge, TN majoring in meteorology with a double minor in floodplain management and American Sign Language is wrapping up a 20-month internship at Mammoth Cave National Park. She conducted preliminary analysis of micro-climate fluctuations in the lower passages of Mammoth Cave due in part to one of the underground rivers. French also helped install new meteorological stations, funded in part by grants from WKU, in the lower passages of Mammoth Cave to further explore the micro-climatic fluctuations and their relationship to the underground river. Caitlyn's research was conducted under the direction of WKU alum and Mammoth Cave International Center for Science and Learning Education Coordinator Shannon Trimboli (MS, '10, Biology).





## Barrow, Alaska

Three undergraduate research students (Benjamin Conkright, Natalie Ngong and Keelee Pullum) and two graduate students (Robert Hudgell and Cassandra Scalf) from WKU's Department of Biology did not see darkness this summer as they conducted field research north of the Arctic Circle. In Barrow, Alaska (71.2906° N, 156.7886° W) the sun rises on May 10th and does not set again until August 2nd.

Of particular interest to the researchers are the Lapland longspur (*Calcarius lapponicus*) and the snow bunting (*Plectrophenax nivalis*), two sparrow-sized songbirds that migrate from the contiguous US and Canada to the farthest north city in America to breed each summer. These two species have been studied for years, but the Ashley lab will be the first to determine if sleepiness affects their ability to parent by implanting some males with melatonin, a hormone that is used even by people, to help ensure a better night's sleep.

These student researchers work under the direction of Assistant Professor Dr. Noah Ashley and his post-doctoral researcher, Dr. Melanie Richter, with grants from the National Science Foundation. The Ashley researchers are interested in discovering how birds that migrate to the far north cope with this continuous light, and balance the need for sleep with the pressures of a short breeding window.

Far left: a grumpy snow bunting nestling

Left: male snow bunting

Above: K. Pullum, K. DelaRosa, C. Scalf weigh Lapland longspur nestlings

Below: K. DelaRosa and N. Ngong set a trap



Left: C. Scalf and B. Conkright marking snow buntings

Above: Male lapland longspur

Right: R. Hudgell, C. Scalf, and B. Conkright weighing snow buntings



## South Korea

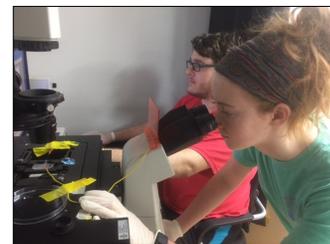
Undergraduate students Dana Biechele-Speziale, Maxwell Conte, Katherine Gaiko, Aaron Kirtland, and Caleb Sedlak spent ten weeks this summer doing research in South Korea.

Biechele-Speziale, Conte, and Kirtland worked on two projects in the Chemistry Department of Changwon National University during their 10 week course. In one project, the optical response of mixed dyes with metal ions were studied for the detection response to amine-containing gases. These dyes change color depending upon which gas is present. Another project focused on the synthesis of molecule that fluoresces when bound with hydrogen sulfide in live cells. Hydrogen sulfide plays an important role in the human body as a signaling molecule, but the mechanisms are not well-understood.

Gaiko and Sedlak were part of an international collaborative project through the Department of Chemical Engineering at Hongik University that focused on combining a protein microarray with a microfluidic module, aiming at developing lab-on-a-chip technology for pathogen detection.

The five undergraduate researchers gained valuable knowledge and research experience as well as an appreciation of cultural similarities and differences, broadening each of their global views.

This research experience was funded by a National Science Foundation (NSF) International Research Experiences for Students (IRES) grant awarded to Moon-Soo Kim, PhD (PI), Assistant Professor, WKU Department of Chemistry, and Eric Conte, PhD (co-PI), Professor, WKU Department of Chemistry.



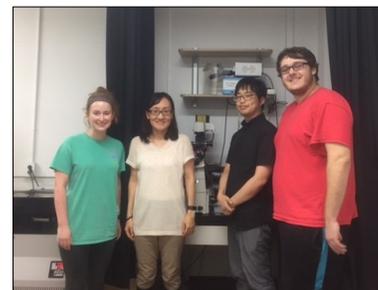
*Katherine and Caleb doing research*



*Katherine and Caleb in a Chemical Engineering laboratory*



*Dr. Eric Conte (top row, far right) stands among his student researchers and Changwon National University students.*



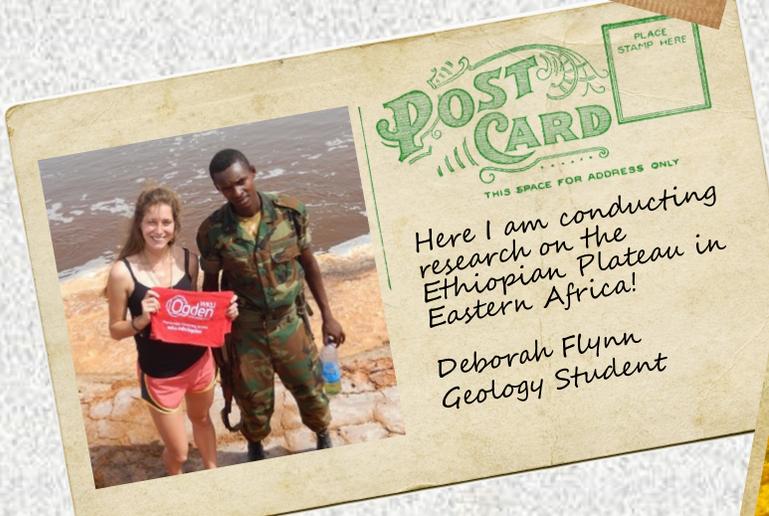
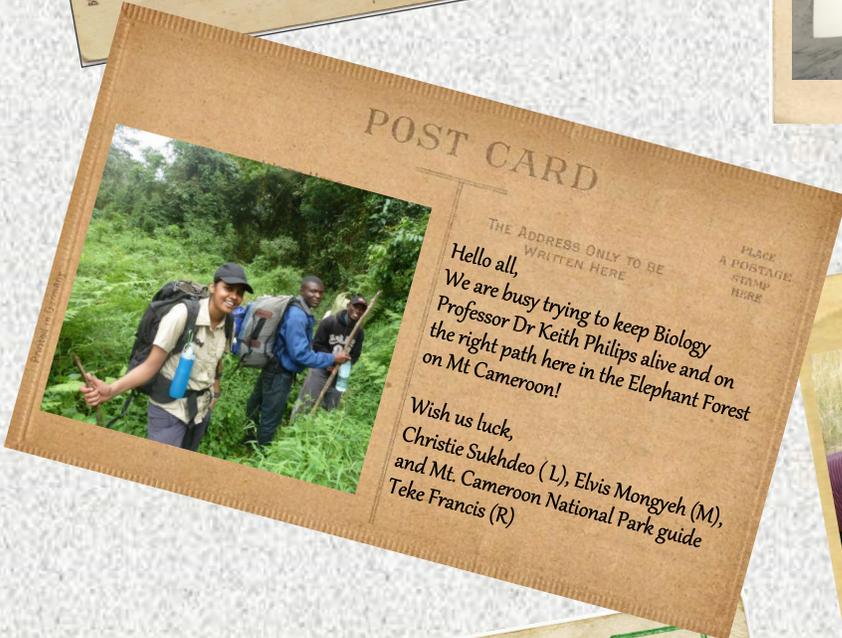
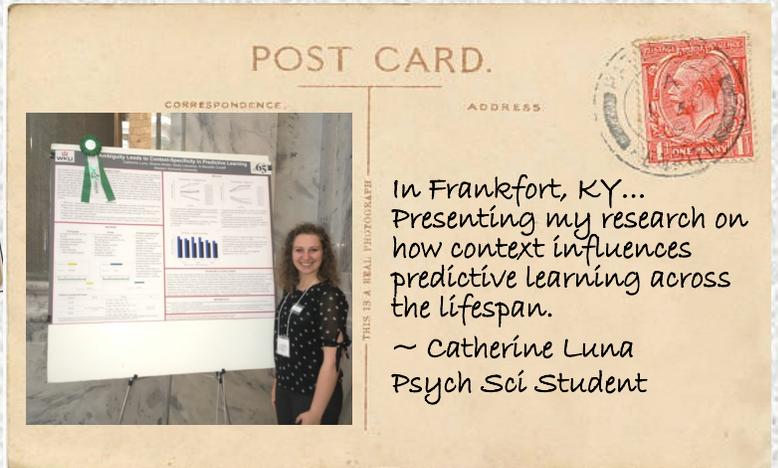
*L to R: Katherine, Dr. Kim, Sukyu (Hongik Univ student), and Caleb*



*L: Aaron Kirtland tests the reaction between dyes and gas .*

*R: Maxwell Conte conducts part of an experiment in a chemistry lab at Changwon National University*







Empower. Connect. Serve

# Research @ WKU and Ogden College

## WKU RESEARCH FOUNDATION

*Promoting research at WKU and beyond*

The WKU Research Foundation exists to support the education and research missions of WKU and promote its scholarly research, technology transfer and economic development. The WKURF.org digital platform is a cross-campus digital research presence focusing on advancing initiatives as well as research and scholarly outcomes and their impacts.

[Learn more about WKURF.](#)

### Connect with the WKU Research Foundation:



info@wkurf.org



www.WKURF.org

**Foundation President:** Cheryl Stevens, PhD

**Board Members:** Cheryl Davis, PhD; David Lee, PhD; Douglas Rohrer; Andrew McMichael, PhD; Neale Chumbler PhD; Timothy Caboni, PhD; Jamie Hargrove; Jeff Hook; Jim Cummings; Keith Andrew, PhD; Laura Hagan; Michael Minter; Mike Cowles; Ron Bunch

**Phone:** 270.745.6733

## Office of Research & Creative Activity

The mission of the Office of Research & Creative Activity (ORCA) at Western Kentucky University is to provide outstanding support for the research, service, creative, and scholarly endeavors of our faculty, staff, and students. Our staff is dedicated to partnering with the university community to increase external support for these activities, while ensuring compliance with federal, state, and institutional regulations.

[Learn more about ORCA.](#)

### Connect with the Office of Research & Creative Activities:

**Office Location:** 301 Wetherby Administration Building (WAB)

**Associate Provost:** Cheryl Davis, PhD

**Office Staff:** Ryanne Gregory

**Phone:** 270.745.6733

research@wku.edu

@WKUResearch

www.wku.edu/research



### Applied Research and Technology Program

The [Applied Research and Technology Program \(ARTP\)](#) is a multidisciplinary program under the leadership of Director Cheryl Stevens and newly-appointed Associate Director Ajay Srivistava. The ARTP consists of the following scientific and service-oriented Centers and Institutes designed to prepare students for the knowledge-based 21st Century global economy.

<b>Materials Institute:</b>	Advanced Materials Institute (AMI)	Applied Physics Institute (API)	Engineering, Manufacturing & Commercialization Center (EMCC)	Nondestructive Analysis Center (NOVA)	Thermal Analysis Lab (TA)
<b>Institute for Environmental Studies:</b>	Biodiversity Center	Crawford Hydrology Laboratory	Center for Human GeoEnvironmental Studies (CHNGES)	Kentucky Climate Center (KCC)	Biotechnology Center
<b>Other ARTP Centers:</b>	Bioinformatics and Information Science Center (BISC)	Social Science Research Center (SSRC)			

#### The ARTP Centers—

- Staffed by undergraduate and graduate students, supervised by WKU faculty and staff
- Provide a mechanism by which students can transition into the workforce or graduate education
- Serve as a catalyst for economic development in the region
- Offer cost-effective scientific solutions through technological and environmental services

#### Meet the ARTP Associate Director

[Ajay Srivistava](#) grew up in the Northern Indian city of Varanasi, where he obtained his BS (Hons) and MS degrees in Zoology with a specialization in Molecular Biology and Cytogenetics from Banaras Hindu University. He travelled to Canada to pursue a Ph.D. in Molecular Biology and Genetics from the University of Alberta in Edmonton, AB.

Upon completion of his Ph.D., Dr. Ajay Srivastava moved to the Howard Hughes Medical Institute, Department of Genetics at Yale University for a Postdoctoral stint. Ajay joined WKU in 2010 and while there also obtained an MBA in general management from the University of Louisville in 2013.

He lives in Bowling Green, KY with his wife Wendy, son Arivumani and a pawed family member, Snoopy.



**Ajay Srivistava, PhD**

ARTP Program Associate Director

[Learn more about the ARTP.](#)

## Dean's Office Staff Update

*Jennifer Anderson is now the Coordinator of Advising & Student Services for the college. Jennifer began her career at WKU in the OCSE Dean's Office in October 2008. In this new position, Jennifer will coordinate*



*the recruiting, retention, and student advising efforts for Ogden College.*

*Biology Academic Advisor Cassandra Cantrell joins other Ogden College advisors in the College High Hall Dean's Office Suite in advance of the January 2018 move into the new Ogden College Hall*



*Academic Advising Center. Cassandra continues to serve the academic advising needs of the undergraduate biology students as she has since 2009.*

*Gregory Arbuckle, PhD accepted a position of Associate Dean in the Ogden College. Dr. Arbuckle began his career at WKU in January, 2005 as Assistant Professor, was promoted to Associate Professor in 2010, and to full Professor on July 1, 2016. He served as Architectural & Manufacturing Sciences Department Chair from 2013 through July, 2017. In his role as Associate Dean, Arbuckle's responsibilities include facilities management, faculty recruitment/retention, student advising coordination, development of partnerships with regional industry, and supporting the development of international collaboration.*



*Melanie H. Redden has been named Communications Specialist for Ogden College. In this newly created position, Redden serves as the communications officer in charge of media relations, press releases, and social media for the college. She organizes special events and Ogden College functions and works closely with the WKU Marketing and Public Affairs team to enhance marketing efforts.*



*Welcome to our newest Hilltopper! Wyatt Peden, son of Cindy and Casey Peden (OCSE IT Consultant) was born on May 24, 2017. Wyatt weighed 8.2 lbs and was 20 3/4" long.*



## School of Engineering & Applied Sciences

**Connect with the School of Engineering & Applied Sciences**



**Facebook: [@WKUSEAS](#)**

**Twitter: [@WKUSEAS](#)**



**Web: [wku.edu/SEAS](http://wku.edu/SEAS)**

**Email: [seas@wku.edu](mailto:seas@wku.edu)**



Approved by the WKU Board of Regents on April 28, 2017, the focus of the new School of Engineering & Applied Sciences (SEAS) is to educate students to be leaders in a changing technical landscape, to provide solutions to the problems facing the modern high tech society, and to provide a workforce to support the technological complexity of industry.

In order to provide students with the necessary skills, the programs in the School of Engineering & Applied Sciences are project-based which means that students have opportunities to engage in project activities throughout the curricula to support design, development, implementation, and troubleshooting.

SEAS consists of three former departments in the Ogden College of Science & Engineering: Architectural & Manufacturing Sciences, Computer Science, and Engineering.



**Stacy Wilson, PhD, PE**

*Director, School of Engineering & Applied Sciences*





# How to Connect

## Agriculture

**Departmental office:** 269 Environmental Science & Technology (EST) Building  
**Department Chair:** Fred DeGraves, PhD    **Office Staff:** Deanna Durrant, Lorna Inglis  
**Phone:** 270.745.3151    **Email:** agriculture@wku.edu    **Website:** www.wku.edu/agriculture/  
**Facebook:** @WKU.Agriculture    **Twitter:** @WKUAgiculture

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## Biology

**Departmental office:** 357 Thompson Complex Central Wing (TCCW)  
**Department Head:** Bruce Schulte, PhD    **Office Staff:** Jessica Dunnegan, Storm Dutton  
**Phone:** 270.745.3696    **Email:** biology@wku.edu    **Website:** www.wku.edu/biology/  
**Facebook:** @WKUBiology    **Twitter:** @WKUBiology    **Instagram:** wkubiology    **Snapchat:** wku\_biology

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## Chemistry

**Departmental office:** 444 Thompson Complex Central Wing (TCCW)  
**Department Chair:** Stuart Burris, PhD    **Office Staff:** Haley Smith  
**Phone:** 270.745.3457    **Email:** chemistry@wku.edu    **Website:** www.wku.edu/chemistry/  
**Facebook:** @WKUChem    **Twitter:** @WKUChemistry

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## Geography & Geology

**Departmental office:** 304 Environmental Science & Technology (EST) Building  
**Department Head:** Fred Siewers, PhD    **Office Staff:** Wendy DeCroix  
**Phone:** 270.745.4555    **Email:** fred.siewers@wku.edu    **Website:** www.wku.edu/geoweb/  
**Facebook:** @WKUGeo    **Twitter:** @WKUGeo

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## Mathematics

**Departmental office:** 4124 College High Hall (COHH)  
**Department Chair:** Bruce Kessler, PhD    **Office Staff:** Lynne Swetmon, Amber Boards  
**Phone:** 270.745.3651    **Email:** math@wku.edu    **Website:** www.wku.edu/math/  
**Facebook:** @WKUMath    **Twitter:** @WKUMath

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## Physics & Astronomy

**Departmental office:** 245 Thompson Complex Central Wing (TCCW)  
**Department Head:** Michael Carini, PhD    **Office Staff:** Sharon Windham  
**Phone:** 270.745.4357    **Email:** webmaster@physics.wku.edu    **Website:** www.wku.edu/physics  
**Facebook:** WKU Physics & Astronomy    **Twitter:** @WKUPhysastro

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## Psychological Sciences

**Departmental office:** 3074 Gary Ransdell Hall (GRH)  
**Department Chair:** Kelly Madole, PhD    **Office Staff:** April Cochran  
**Phone:** 270.745.3918    **Email:** psychsciences@wku.edu    **Website:** www.wku.edu/psychological-sciences/  
**Facebook:** @PsychologicalSciencesatWKU    **Twitter:** @PsySciencesWKU

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## School of Engineering & Applied Sciences

**Director:** Stacy Wilson, PhD    **Email:** seas@wku.edu    **Website:** www.wku.edu/seas/  
**Facebook:** @WKUSEAS    **Twitter:** @WKUSEAS  
**Office Staff:** Jennifer Leptinsky (270.745.3251); Amber Boards (270.745.3651); Phyllis Townsend (270.745.2461)



WKU will celebrate Homecoming 2017  
"There's No Place Like Home" the week of October 9-15, 2017.

## Homecoming Day is Saturday, October 14.

WKU vs. Charlotte football game kick-off is set for 3:30 p.m.  
Festival of Friends tailgating will officially begin on campus at 11:00 a.m.  
**Ogden Alumni, Faculty, and Staff are invited to COME HOME to South Lawn for OCSE's Tailgating Event on Game Day from 11:30a—2:30p.**

[Learn more about Homecoming 2017.](#)

## Ogden College Hall

"On time, on budget"  
Classes scheduled for the Spring 2018 term



[See more of Ogden College Hall.](#)