NSF Grant to Help Honors College Recruit STEM Students

The National Science Foundation has awarded $999,847 in grant funding to the University of Arkansas’ Path to Graduation Program, which aims to increase the number of low-income students, especially those from rural regions of Arkansas, who graduate with a degree in science, technology, engineering or mathematics, the STEM fields.

“Currently the state of Arkansas is not able to meet STEM labor demands. This grant is an important first step in training the next generation of scientists and engineers from throughout the state and beyond,” said Lynda Coon, dean of the Honors College. “This program will specifically target those areas of Arkansas where there are many minority and first-generation students but few opportunities to pursue STEM education.”

Paul Adams, associate professor of chemistry and biochemistry as well as cellular and molecular biology in the J. William Fulbright College of Arts and Sciences, will direct the program. He has mentored more than 70 students at undergraduate, graduate and postdoctoral levels since coming to the U of A in 2007, and said he decided to participate in the program based on his own experience growing up.

“I’m not from a rural area or underprivileged background, but STEM disciplines were not discussed in my home nor in my community as a potential career option,” Adams recalled. “This program fits perfectly with my desire to continue to lift as I climb as an academic professional in a STEM discipline.”

As principal investigator, Adams will help to welcome the students when they first arrive on campus and will contribute to ongoing support, in addition to reporting on their progress throughout their career at the U of A.

The grant will support two groups of 18 STEM students per year who will receive annually renewable scholarships of up to $4,500, or $5,500 if they participate in the Honors College. These students will also benefit from an in-residence summer bridge program, shared housing, academic success advising, faculty and peer mentoring, and on-campus or industry-based research opportunities. Grant funding will begin Jan. 1, 2018, and extend through Dec. 31, 2022. The first cohort of Path to Graduation Scholars will arrive on campus in fall 2018.

The Path to Graduation program is an extension of the Honors College Path Program, established in 2014 to recruit exceptional high school students from underrepresented populations and to help them excel at the University of Arkansas. More than 40 percent of Path students have joined the Honors College to date, and an estimated 100 percent of the first group are on schedule to graduate next May.

Carol Gattis, associate dean emerita of the Honors College, authored the grant with input and help from other partners on the grant, including Yvette Murphy-Erby, vice provost for diversity and inclusion; Leslie Yingling, associate dean for inclusion in student affairs; Bryan Hill, assistant dean for student recruitment and diversity, honors and international programs in the College of Engineering; and Terrance Boyd.
Faculty News

On the Go

Feng Wang gave an invited talk, “Modeling hydration of simple ions on the MP2 potential energy surface with molecular mechanics force fields, Symposium on Contemporary Computational Chemistry,” 69th Southeastern Regional Meeting of the American Chemical Society, Charlotte, NC, Nov. 7-11, 2017.

Several members of the Fritsch group participated in the Gordon Research Seminar on Electrochemistry (January 6-7, 2018) and the Gordon Research Conference on Electrochemistry (January 7-12, 2018) in Ventura, CA. The poster presentations are:

Aaron Nicholson, Foysal Khan, and Ingrid Fritsch, Fundamental studies of circular redox-magnetohydrodynamic microfluidics: Toward small-scale, loop based chemical separations and sampling.

Benjamin J. Jones and Ingrid Fritsch, Conducting copolymers from aqueous Co-electropolymerization of two thiophene-containing monomers with different functional groups and subsequent film conjugation.

Foysal Z. Khan, David N. Parrette, and Ingrid Fritsch, Optimizing polymer-immobilized, redox-magnetohydrodynamics (R-MHD) pumping for microfluidics systems.

Mahsa Lotfi Marchoubeh, Mengjia Hu, and Ingrid Fritsch, Challenges of simultaneous measurement of catecholamines in mixtures: Steps toward neural probes suitable for in vivo analysis.

Jazlynn Sikes, Isabelle Niyonsutshi, Jingyi Chen, and Ingrid Fritsch, Investigations of variations in electrochemical signals from impacts by silver nanoparticles of differing shapes.

Publications


Honors and Awards

Mahsa Lotfi Marchoubeh placed second in the Fulbright College 3 minute thesis competition January 22-26. The top finisher from each college will advance to a university-wide final on February 2. The competition celebrates discoveries made by graduate students and encourages them to communicate the significance of their research to the broader community in language that is understood by the general public. The competition is sponsored by the Graduate School and International Education and was founded by the University of Queensland in 2008. The event will serve as the capstone to Graduate Education Week, which kicks off January 29. More can be found in the UA Newswire article located at http://bit.ly/2i32mP9.

Emeritus Professor Peter Pulay was awarded the J. Clarence Karcher medal January 19, 2018. He was the Karcher-Barton Lecturer at the University of Oklahoma, Norman. The medal honors J. Clarence Karcher (1894-1978), who was a distinguished scientist, innovator and alumnus. His pioneering development of the reflection seismograph resulted in the discovery of energy resources for much of the world.

New Graduate Students Join Department

Beginning in January, 2018, the department welcomed four new graduate students. Dylan Ogden, from Fayetteville, AR, received his B.S. in May of 2017 from the University of Arkansas. John Ozdemir, from Fayetteville, AR, received his B.S. in May of 2016 from the University of Arkansas. They both join the Chemistry and Biochemistry department.

Patience Okoto, from Ghana, Africa, received her B.S. from the University of Cape Coast in 2014. She will be a cell and molecular biology student in the Kumar lab. Adithya Polasa, from Karimnagar, India, received her B.S. from the Anurag group of institutions in Hyderabad, India, and her M.S. from Long Island University CW Post Camp in Greenvale, NY. He is a cell and molecular biology student in the Moradi lab.
From the Chair ~ Wesley Stites

We have had a number of exciting things happen in the past few months; so many it is hard to decide what to share. So I am going to share three very different bits of news. As noted elsewhere, we welcomed a new group of grad students this spring. This is never as large a group as in the fall, but we are always glad to see them. In many cases, our international students have to delay their arrival to resolve visa issues. This made me think. If you haven’t been around in a while you might be surprised at how cosmopolitan our faculty, post-docs, and grad students are. This January, we decided to ‘map’ the department, asking faculty, post-docs, and grad students “Where are you from?” Of course, in many cases, somebody can be ‘from’ several places, but we limited them to one place of their choice. As you can see below, Arkansas and the surrounding region is well represented, but we literally stretch across the globe.

There are a few other things that aren’t mentioned elsewhere in this issue that happened recently which our alumni and friends may find interesting. Our undergraduate program is thriving. We are trying out several new programs designed to help the many non-chemistry students who struggle in Chemistry I and II. We have made the case to the administration that this class is often a stumbling block to student success and that they should invest in helping students succeed. We have additional TA support and are experimenting with smaller sections and ‘flipped’ classroom models to see what results in higher rates of students passing this class without lowering our standards. We have tightened our math pre-requisites for the course as well and are seeing a large shift in enrollment toward the spring amongst the less-prepared freshman as a result. Enrollment this spring is up more than 5% compared to last spring!

Let me close with the fact that we had our inaugural Doris Mills Memorial Lecture at the end of January. The Mills family was kind enough to establish this bequest endowment for this lecture series almost twenty years ago and after long lives, their endowment came to us. Doris met Louis Mills here at the University when he was working on his Masters degree in chemistry. They left in 1942 and moved to Bartlesville, OK, where he worked as a chemist for Phillips Petroleum for many years. Doris passed away as a fairly young woman; in 1955. She is buried a few hundred steps from the Chemistry Department in Evergreen Cemetery. We are grateful for the family for helping us to remember Doris for the foreseeable future by enriching the intellectual life of the Department with a series of distinguished speakers.
On December 11th to the 14th, 2017, graduate students Mamello Mohale (Developing FRET Assays to study the binding of FGF to its receptor) and Collette Robinson (Water Solubilization of CulnS2/ZnS QDs and their Bioconjugation to Fibroblast Growth Factors for In-vitro Imaging) were invited to give oral presentations at the 9th International Conference of the African Materials Research Society (AMRS2017) held in Gaborone, Botswana. The theme of the conference was “Addressing Africa’s Challenges through Materials Development” through exploring collaborative opportunities between African, American and global scientists. Furthermore, the focus was on developing cheap, robust, user-friendly materials applicable to sectors such as Energy, Water, and Health in the developing world. AMRS being funded by United States agencies such as MRS, NSF, and ACS, was able to attract approximately 500 scientists from 65 different countries with a notable speaker being 1987 Nobel Prize Winner in Chemistry Professor Jean Marie-Lehn. Other keynote plenary speakers included Professor Paul S. Weiss (Editor in Chief of ACSNano, UCLA), Professor Nelson Torto (CEO, African Academy of Sciences) and Professor Sossina Haile (Northwestern University). The intimate setting of the conference truly allowed for meaningful discussions for how chemists from different fields can work together to address these challenges that still plague Africa even today.
Above: Periodic Table at Lion Park Resort, Gaborone, Botswana
Top Right: Up close and personal with one of the park’s elephants
Right: Boulders Beach, Capetown, South Africa
Below right: With lions at Lion Park Resort, Gaborone, Botswana
Below: On photo safari with Plenary Speaker Paul S. Weiss
Alumni James Wear Receives International Award in Clinical Engineering

James O. Wear, PhD, CCE, CHSP, FACCE, FASHE, FAIMBE, FAIC, was selected for the 2017 IFMBE/CED award in Clinical Engineering. The award will be presented to Dr. Wear at the IFMBE World Congress in Prague, Czech Republic, June 3-8, 2018.

The International Federation of Medical and Biological Engineering/Clinical Engineering Division Award (IFMBE/CED) is the highest international award in the field of Clinical Engineering and is presented for: demonstration of significant impact on the Clinical Engineering field, significant contribution to the development of the profession of Clinical Engineering, and activities on the national and/or international organizations for Clinical Engineering have been meritorious. The award consists of a plaque, travel funds to attend the World Congress, and a Plenary talk invitation. The award is presented every three years.

Dr. Wear holds a B.S. (1959), M.S. (1960), and Ph.D. (1962) in physical chemistry from the University of Arkansas. “I came to the UA in summer of 1957 and in the second semester I started working in Dr. Ed Amis’ lab. I did all my work under him and finished the Ph.D. in the summer of 1961. I then went to work as a research chemist and in-house consultant at Sandia Corp. in Albuquerque, NM,” he reflected.

He was Managing Director, Little Rock Employee Education Resource Center (LREERC), Department of Veterans Affairs where he was responsible for training of engineering and safety personnel in their 172 hospitals. He worked there from December, 1965 until he retired in February, 2007.

He was also Professor and Head, Biomedical Instrumentation Technology, College of Health Related Professions, University of Arkansas for Medical Sciences (Little Rock, AR) from 1972-2000. He was Adjunct Professor of Science at Philander Smith College 1966-1983.

Wear has been active in the American College of Clinical Engineering, Association for the Advancement of Medical Instrumentation, the American Society of Healthcare Engineering and with the Clinical Engineering Division of IFMBE. He is certified in Clinical Engineering and a Certified Health Care Safety Professional. He is a Fellow in the American Society for Healthcare Engineering, Fellow in the American College of Clinical Engineering, Fellow in American Institute for Medical and Biological Engineering and a Fellow in American Institute of Chemists.

He has served on the Boards of Examiners for Biomedical Engineering Technician, Clinical Engineers (twice), and Health Care Safety Professionals, and has worked for the past several years to help develop the written and oral exams for the Clinical Engineering Certification program in China.

Awards received:
Outstanding Young Man in the State of Arkansas 1973
National Eagle Scout Association Outstanding Eagle Scout Award 2011
ACCE Marvin Shepherd Patient Safety Award 2008
ACCE Lifetime Achievement Award 2014
AAMI Foundation/ACCE Robert L. Morris Humanitarian Award 2011
Distinguished Collaboration Award for Exceptional Contribution to the CE Profession in China 2016

Wear is co-founder and co-chair of the Commission for the Advancement of Healthcare Technology Management in Asia.

He has written over 150 publications in national journals in Chemistry, Clinical and Biomedical Engineering, and Hospital Safety, twenty chapters in books and co-authored eight books:

He has made over 200 presentations at regional, national and international meetings in Chemistry, Clinical and Biomedical Engineering, and Hospital Safety. He has lectured in workshops and courses in China, Taiwan, Hong Kong, Russia, Lithuania, Estonia, Australia, Thailand, Brazil, Nepal, South Africa, Kenya, Tanzania, Singapore and Malaysia. He has taught a graduate course in Clinical Engineering Management at Hong Kong Polytechnic University.

He has been married to Judy for 58 years and they have two children, Eric Otto Wear and Kay Wear Adams, and 4 granddaughters and 1 grandson.
Ph.D. Student Defense


Randy received his undergraduate degree in chemistry from the Universidad Autonoma de Santo Domingo, and entered our program as a master’s student in 2008. His M.S. was completed in 2012. His advisor for both the M.S. and Ph.D. degrees was Dr. Julie Stenken.

When asked about his post graduate plans, he replied, “I am going to be working on surface coatings for low friction mechanical applications, like journal bearings and bushings, at SurfTec, LLC doing a postdoc. I already work there as a research and development engineer.” The company is located at the Arkansas Research and Technology Park, and was founded by CEO Samuel Beckford and Min Zou, professor of mechanical Engineering.

SurfTec was founded to develop a novel low-friction, durable coating developed at the University of Arkansas. This technology enables the use of PTFE coatings that are exceptionally thin in applications that are traditionally off-limits for fluoropolymer coatings due to wear, operating conditions, or decomposition of conventional resin binders. They are currently seeking partnerships in the development process and are interested in learning more about your application needs.

Students Pass CUMEs

Three students passed their required number of cumes at the end of the fall semester.
Alexa May, from Skiatook, OK, received her B.S. from Oklahoma State University in May of 2015 and entered our program the following fall. Her advisor is Matt McIntosh.

Isabelle Niyonshuti, a student from Rwanda, received her B.S. from Spelman College in 2016. While there, she was an NSF REU participant here in the summer of 2015, under the guidance of Colin Heyes. She entered our graduate program in the fall of 2016 and her advisor is Jingyi Chen.

Colin O’Donnell is from Sterling, Virginia. He received his B.S. from James Madison University in 2015, and entered our program that fall. His advisor is Wesley Stites.

Congratulations!
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The department of chemistry and biochemistry at the University of Arkansas strives for excellence in research, teaching and service in chemistry - the central science. We aspire to positions of leadership regarding the discovery of new scientific knowledge, the training of students, and the economic development of the State of Arkansas. We seek to recruit and retain a diverse group of the best faculty, students and staff to address the challenges of the future through interdisciplinary and multidisciplinary research and education.

Library Hours
Fall Hours: August 20 - December 16
Saturday and Sunday CLOSED
Monday - Thursday 8:00 am - 9:00 pm
Friday 8:00 am - 6:00 pm

Exceptions to Regular Fall Hours
Friday Dec 15 8:00 am - 5:00 pm

Interim and Winter Break: December 17-Jan 1
Monday - Thursday Dec 18-21 8:00 am - 5:00 pm
Friday - Monday Dec 22-Jan 1 CLOSED

Intersession Hours - January 2-13, 2018
Tuesday-Friday Jan 2-5 8:00 am - 5:00 pm
Saturday-Sunday Jan 6-7 CLOSED
Monday-Friday Jan 8-12 8:00 am - 5:00 pm
Saturday-Sunday Jan 13-14 CLOSED

The chemistry and biochemistry library resources can be accessed in the following LibGuides: http://uark.libguides.com/content.php?pid=110953. Please bookmark for future use.
Theses and dissertation resources can be found on the following LibGuide: http://uark.libguides.com/content.php?pid=123035 &sid=1057466.

For more information: Check the Libraries' web site (http://libinfo.uark.edu) for updated information on hours and services. Library hours are also available by dialing 479-575-2557.

Safety Tip:
By Chris Mazzanti
Check safety data sheets from time to time, as they are being updated and you need to be up to date on safe handling of chemicals

Calendar of Events
April
2 Seminar: Ronald Kluger, University of Toronto, 3:30, CHEM 144
6 Priority Registration for currently enrolled students
9 CUME, 5:00-6:00 p.m., CHEM 144
9 Seminar: Doug E. Frantz, The University of Texas at San Antonio, 3:30, CHEM 144
16 Seminar: Roger L. Williams, DEA, North Central Laboratory, 3:30, CHEM 144
30 Seminar: Thomas A. Bobik, Iowa State University, 3:30, CHEM 144

May
4 Final copies of thesis/dissertations must be submitted to the Grad School for May graduation
4 DEAD DAY
7-10 Final Exams week
12 All degree requirements must be completed for graduation
11-12 Commencement
18 Record of Progress forms due for graduating students

Spring 2018 CUME Dates
January 26
February 9
March 2
April 6
April 27
All cumes are in CHEM 144
5:00-6:00 p.m.