

Spring 2017  
Volume 1, Issue 1



# The Investigators

Tulsa Community College  
GKFF Undergraduate Research Newsletter

## 31<sup>st</sup> Annual national conference on undergraduate research



A marvelous group of researchers traveled to the 31<sup>st</sup> Annual National Conference on Undergraduate Research at the University of Memphis in Memphis, Tennessee on April 6-8, 2017. The title of the conference was *Driven by Doing*. The faculty traveled in two vans and enjoyed the group bonding along the trip.



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# Reflections on Memphis



## Back Row:

Rob Katz, Neil Enis,  
Susan O'Neal, Jacob  
Beckham, Mark  
Swanson

## Front Row:

Chandra Carpenter,  
Mary Phillips, Diana  
Spencer, Gay Phillips,  
Cindy Shanks

Marvelous fun and barbeque was had by all, while the conference provided amazing activation energy to get one thinking of the research possibilities.

Excerpts from the participants are included below, while entire passages are available on the Engaged Learning website.

On April 8, 2017 three individuals, Heather Bock (FLCC), Virginia Balke (Del Tech CC), and Diana Spencer (TCC), all representing the Community College Undergraduate Research Initiative presented during the NCUR FAN sessions in Memphis. The talk was *Building Success Through CUREs and Collaborations*.

## Excerpts from Faculty Reflections:

I plan on having students present at NCUR next year as I think it will be a benefit for students to present their work and to see other student presentations. --*Chandra Carpenter*

NCUR helped to broaden my vision of research by an order of magnitude, and I'm very excited about the prospect of engaging my students in multidisciplinary research right here at TCC. Perhaps some of my students will even be in a position to present their own findings at NCUR 2018! --*Neil Enis*

I'm convinced that many of our students at TCC are in fact capable of producing the level of work found at the conference and I look forward to seeing increasing numbers of TCC students participate in such local, regional, and national events in the coming years. I am inspired to motivate my own students to strive for excellence and accomplish what even they may not have believed possible for their academic development. --*Rob Katz*

Because I take a multidisciplinary approach to my composition classes, it was helpful to see the academic conventions of fields in which my students major, so that I am better able to prepare them for their work in other classes, especially upper-level ones. --*Susan O'Neal*

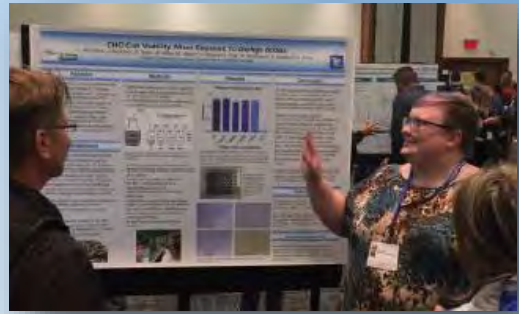
## Excerpts from Student Reflections:

Educational travel events such as NCUR provide students like myself with experiences to support a competitive edge in future endeavors. I am grateful for all the hard work that TCC faculty have put in to help me succeed!

**--Anna Platt (Student)**

Educational travel events such as NCUR provide students like myself with experiences to support a competitive edge in future endeavors. I am grateful for all the hard work that TCC faculty have put in to help me succeed!

**--Jacob Beckham (Student)**



This tells me I need to be involving and pushing my sociology students more in conducting research whether they present at conferences or not. **--Gay Phillips**

Attending the conference with colleagues from multiple disciplines was a super fun experience and helped forge new friendships and collaborations. I left the conference with many new creative and innovative ideas! **--Mary Phillips**

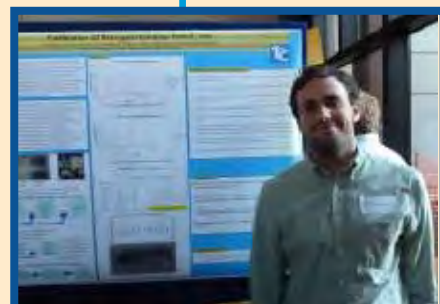
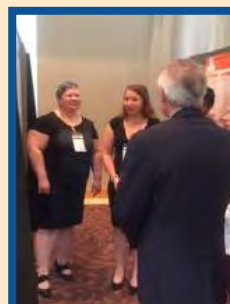
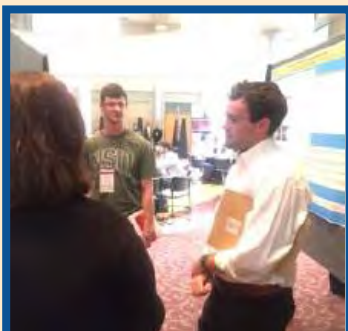
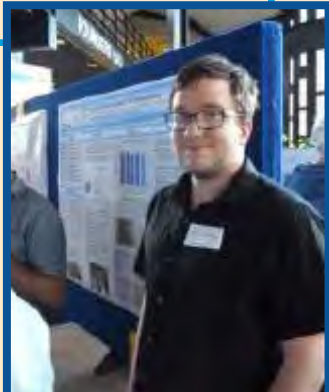
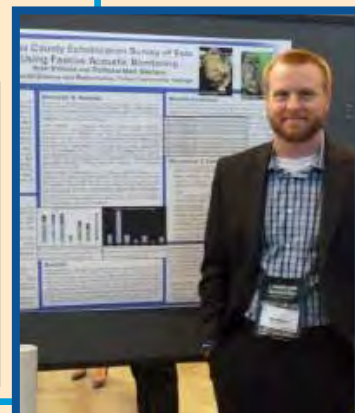
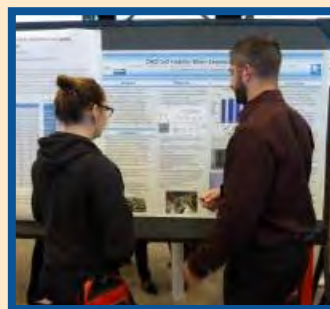
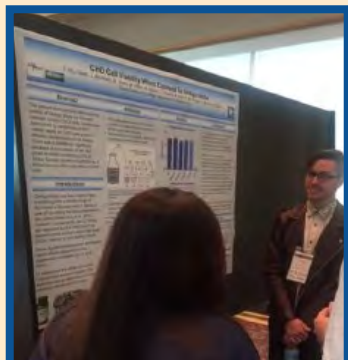
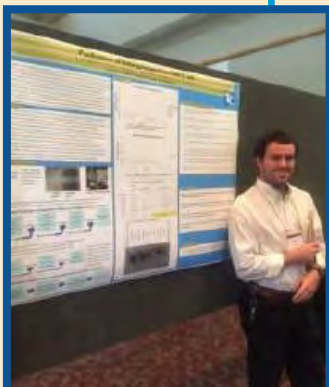
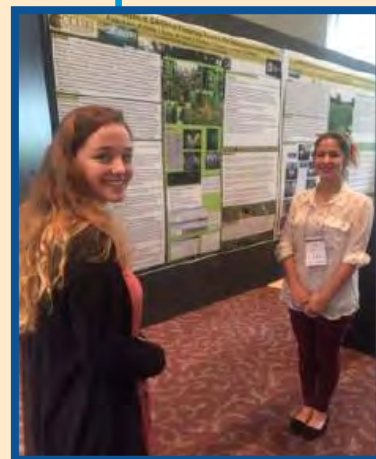
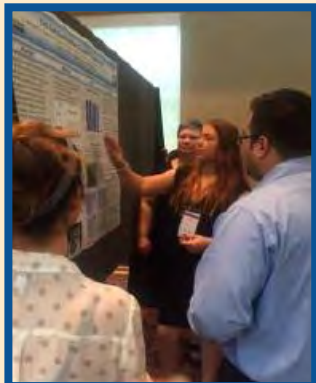
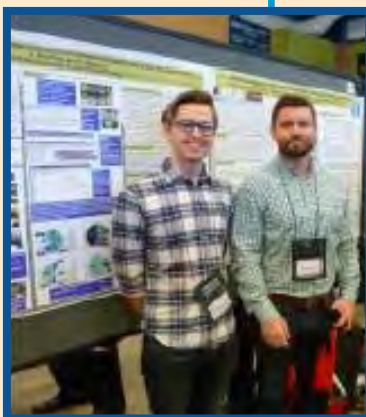
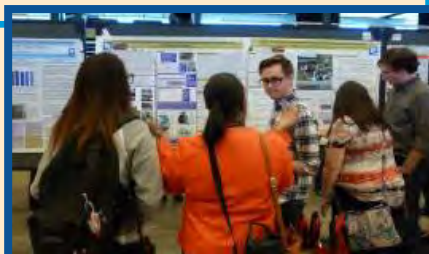
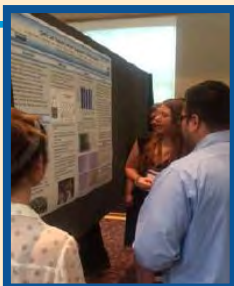
As I watched the presenter, it dawned on me that undergraduate research does not have to be something complicated. Our students do this type of research all of the time. **--Jerilyn Schultz**

This type of program will help students prepare for their upper division classes and continue their research projects. The conference has given me several ideas to think about that I may be able to do with my students. **--Mark Swanson**

Three unique (and generous) strategies, three very different professors, but one abiding theme, which was that it was a labor of love--for research itself, for their disciplines, but mostly, of course, for their students, honors and otherwise, for and with whom they worked tirelessly, uncovering the challenges and rewards of research. **--Cindy Shanks**



# Oklahoma Research Day, Oklahoma Academy of Science, & Tulsa Research Day



# Fall 2016 and Spring 2017 Student Research Presentations



## TCC Honors Scholars Present

Two **Tulsa Community College Honors Scholars** were accepted as presenters at the 2017 Great Plains Honors Council conference. The conference was held March 31-April 2 in Beaumont, Texas, and hosted by Lamar University's Reaud Honors Program. The Great Plains Honors Council is made up of honors programs and honors colleges from the six-state region of Arkansas, Kansas, Missouri, Nebraska, Oklahoma, and Texas.

- ♦ **Amairani Perez Chamu** presented "Gender Wars: The Women's Fight for Equality in the Film Industry." Amairani is a film studies major whose research interest was sparked by the reported "pay gap" between men and women working in Hollywood. She found this gap is widest for Hispanic women. In the conference program, she described her project in this way: "At a pivotal time in history when the film industry continues to garner billions with massive hits at the box office, underneath the surface of the screen lies a major problem centered on the misrepresentation and unethical treatment of women working within the film industry. As awareness of these obstacles for women is beginning to surface, more men and women are rising to expose the failure of an industry that overwhelmingly favors one gender over another." Amairani is attending OSU-Tulsa in American Studies. She has participated in two internships and is working on a screenplay.
- ♦ **Brandi Olsen presented** "Bringing Our Second Brain to the Table," a paper she researched and wrote in her Honors Composition II class. Her abstract for the conference program: "Humans have a second brain: the gastrointestinal system. Hippocrates himself declared the importance of the gut's health in the body; however, many treated this idea as superstition and left it untested until recently. Through thorough experimentation, modern scientists have established direct links between poor gut health and even brain disease." Brandi was a business major at TCC. She graduated as an Honors Scholar.

## Additional Presentations

Students in Professor Janice Airhart's five English Comp I classes completed "The Pursuit of Happiness," investigation regarding detailed research studies and unique indicators.

For more information on either investigation, please travel to:  
<http://guides.library.tulsacc.edu/c.php?g=553104&p=3799921>



## Student Poster Presentations

- ◆ **DNA Barcoding of Fresh and Salt Water Fish: Populations Related to Habitat**

**Presented by:** M. Swanson, F. Abu-Saleh, J. Beckham, B. Eccleston, M. Hotson, C. Pickerel, N. Richardson, D. Spencer

- ◆ **Isolation and Analysis of *GAPDH* of Flowering Plants in the Oklahoma Central Plains**

**Presented by:** F. Abu-Saleh, M. Gates, S. Grace, M. Hilton, C. Pickerel, T. Russell, J. Vallejo, D. Spencer

- ◆ **A Survey of the Rhizosphere Microbial Community of Grasses and Legumes Using 16S rRNA Amplification**

**Presented by:** J. Beckham, D. Spencer

- ◆ **CHO Cell Viability When Exposed to Ginkgo Biloba**

**Presented by:** F. Abu-Saleh, J. Beckham, M. Gates, M. Hilton, M. Hotson, C. Pickerel, A. Platt, N. Richardson, S. Sandoval, D. Sloan

⇒ Steven Nick Richardson, Fatima Abu-Saleh, and Cassandra Pickerel attended the **2017 CCURI Fall Student Colloquium at Phoenix, Arizona**. Diana Spencer, coPI on the CCURI project attended with the students.

⇒ On Thursday, November 3 **Tulsa Research Day** was held at Founders Hall at OU-Tulsa. TCC students, Jacob Beckham, Fatima Abu-Saleh, Anna Platt, Stephanie Sandoval, Mitchell Hotson, Cassie Pickerel and Michael Hilton presented posters.

⇒ **Oklahoma Academy of Science at OSU/CHS** with Jacob Beckham, Brian Eccleston, Steven Nick Richardson, Mitchell Hotson, Fatima Abu-Saleh and Cassandra Pickerel presented all four posters listed above.

⇒ **Oklahoma Research Day on March 3, 2017** in Enid, Oklahoma. The event was hosted by Northwestern Oklahoma State University at the Central National Bank Center in Enid. Jacob, Anna, Mitchell, Michael, Stephanie, and Cassie all presented.



## OK INBRE SMaRT

Jacob Beckham had an unusually good year that began with his studies through the OK INBRE SMaRT program with PI, Diana Spencer. Jacob earned the opportunity to be TCC's representative at the EPSCoR Research Day at the Capitol in Oklahoma City. Jacob also had an invitation from Oklahoma EPSCoR to meet with congressional members in Washington, D.C.

## Oklahoma Research Day



Something very special occurred during the Oklahoma Research Day. One of our faculty members, Paulette Ramsey, has a great history of having her students complete research projects for a classroom presentation. Ms. Ramsey had attended NCUR 2015 with a group funded through OK INBRE. Ramsey connected me with one of her students who had created a marvelous study, Tiffany Blue-Diaz. Within a short period of time working with Tiffany, she was able to place her information in a poster format. We think this is the first time that a TCC student presented a physiology assignment poster of research work at Oklahoma Research Day.

The title of the project was:

**Benefits of Doula Support for Women During the Perinatal Period**  
**Tiffany Blue-Diaz, B.A.; Paulette Ramsey, M.A**



## CCURI Community College Undergraduate Research Initiative Spring 2017 Colloquium

Diana Spencer attended the CCURI Community College Undergraduate Research Initiative Spring 2017 Colloquium at Anoka-Ramsey Community College in Minneapolis, Minnesota on April 26-29, 2017. Diana led three alumni from CCURI Partner Institutions on a panel called: **What comes Next? How undergraduate research experiences give you a leg up and propel you to the next step.** The alumni students were amazing!





## OK INBRE Summer Undergraduate Research Program for Community College Students

The recipients of the OK INBRE Summer Undergraduate Research Program for Community College Students for the Summer of 2017 was announced in early March, 2017. The students and their mentors include:

- ◆ Anna Platt in the lab with Dr. Rousch at OSU/CHS
- ◆ Michael Hilton in the lab with Dr. Koehler at OSU/CHS
- ◆ Cassie Pickerel in the lab with Dr. Kaul at OSU/CHS
- ◆ Jacob Beckham in the lab with Dr. Sheaf at the University of Tulsa
- ◆ Ashley Zongker in the lab with Dr. Vazquez at OSU/CHS

Congratulations students and a hearty “thank you” to the organizers of the program and the mentors.

## Tulsa Area Bioscience Educators and Researchers Consortium Internships



Three of our students at TCC were awarded Tulsa Area Bioscience Educators and Researchers Consortium Internships. Congratulations to:

- ◆ Christy Eslinger
- ◆ Stephanie Sandoval
- ◆ Faiz Safdar



## Summer 2017 Application to the OK INBRE Summer Mentoring and Research Training Program (SMaRT)

Diana Spencer got word that the Summer 2017 Application to the OK INBRE Summer Mentoring and Research Training Program (SMaRT) was accepted for summer research regarding the soil microbiome. Students Ashley Kennedy and Brian Forrester will be working with Dr. Spencer 20 hours each week of the summer and complete a poster with the information.



## Bioinformatics Tools Investigation

During the Fall 2016 and Spring 2017 Semesters, Diana Spencer worked with a group of TCC professors on the SE Campus to provide a bioinformatics tools investigation for students in a number of biology classes. We received help from Ms. Jennie Allen, the OK INBRE Media Specialist and the IR group facilitated the use of a survey. The spring group of teachers included: Anne Cross, Donita Gray, Ephanie DeBey, Mary Phillips, and Melissa Masse. The fall group of teachers included Christine Thompson, Angela Bias, Anne Cross, Melissa Masse, Chandra Carpenter, and Mary Phillips. Notice that the statistics analyzed 190 students pre- and post-survey.

### Bioinformatics Pre- and Post-survey Comparison April 17, 2017

The following tables show results from the pre- and post-surveys administered to TCC students who had completed the Bioinformatics Unit in November 2016 and April 2017.

Students' pre- and post-survey items were paired by matching student identification numbers. All eleven items were statistically significant using a paired samples t-test.

*Table 1 – Paired Samples Statistics*

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BLASTn - post	4.23	191	.716	.052
	BLASTn - pre	2.06	191	1.096	.079
Pair 2	BLASTp - post	4.21	191	.733	.053
	BLASTp - pre	2.04	191	1.080	.078
Pair 3	PUBMED - post	4.08	190	.925	.067
	PUBMED - pre	2.22	190	1.253	.091
Pair 4	PCR Screening - post	3.92	190	.975	.071
	PCR Screening - pre	2.21	190	1.158	.084
Pair 5	DNA Barcoding - post	4.26	191	.776	.056
	DNA Barcoding - pre	2.27	191	1.105	.080
Pair 6	Finch TV - post	3.88	189	.946	.069
	Finch TV - pre	2.01	189	1.037	.075
Pair 7	BioEdit - post	4.17	191	.799	.058
	BioEdit - pre	2.02	191	1.051	.076
Pair 8	Contiguous Sequences - post	4.13	190	.755	.055
	Contiguous Sequences - pre	2.05	190	1.043	.076
Pair 9	MEGA Alignment - post	4.15	191	.803	.058
	MEGA Alignment - pre	2.01	191	1.049	.076
Pair 10	MEGA Muscle Phylogeny - post	3.95	191	.931	.067
	MEGA Muscle Phylogeny - pre	2.02	191	1.041	.075
Pair 11	Bioinformatics - post	4.20	191	.783	.057
	Bioinformatics - pre	2.17	191	1.118	.081



## Project Updates

- ◆ We have information that the **Faculty Research Survey** has **more than 50 participants!** We plan to work to create a document that will be accessible online. The data have not been compiled at this time
- ◆ We have experienced challenges and many successes with the development of the **FREE to ASPIRE Research and Scholarly Activities** interdisciplinary work. Please see the attached minutes and slides used during the meetings of 2016-2017. Enjoy the successes!

## Ongoing Projects:

### Check our next newsletter for Progress

We have uploaded two **TCC Foundation** requests that include TCC internships and travel for faculty to NCUR 2018 in Edmond, Oklahoma. We are also working on a bioscience grant that **involves** multiple collaborations. More info and work to come through the summer and fall of 2017.

The **National CCURI Lab Methods Workshop** will be held in the TCC Health Science and Biotechnology Building during May 22-24, 2017. Many hours have been put into preparation for the guests from across the nation. The workshops include bioinformatics, CRISPR Cas9, Soil Ecology, freshwater sponge DNA extraction, and DNA Barcoding.

This summer, we anticipate an excellent CUR URPD Conference in Flagstaff, Arizona along with investigating with the wonderful students in the Applied Bioscience Research Course.

For more information, please contact:

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