“Helping to Build a Stronger Community and Nation through Science, Technology, Engineering, and Mathematics Careers”
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The UAPB STEM Academy is a well integrated set of enrichment programs designed to help meet local, state and national human resource needs in STEM areas. As an HBCU with a land grant mission, the University of Arkansas at Pine Bluff (UAPB) has a legacy of service to underserved, rural and minority populations. The STEM Academy reflects this mission and has a particular emphasis on helping to increase the pool of well-prepared underrepresented minorities in STEM majors and careers.

Currently, there are three enrichment initiatives, including the NSF-funded HBCU-UP Comprehensive Implementation grant which is foundational to the STEM Academy; the NSF-funded Arkansas Louis Stokes Alliance for Minority Participation grant which is reflective of best practices learned in the HBCU-UP STEM Academy; and the U.S. Department of Education funded M.Ed. Degree in Science and Mathematics Education Program. All are designed to help meet research, teaching, and industry needs in science areas, with a particular emphasis on diversity in these critical area. The Arkansas Science and Technology Authority is also a major partner in these initiatives.

Some key components of the STEM Academy initiatives include: Guest Lecture Series, advisory board, Pre-First Year Summer Institutes/Academy, hands-on research/mentoring experiences, internships, study groups, curricula and infrastructure upgrades. Currently, the STEM Academy has 229 undergraduates and six graduate students.

Disciplines include: chemistry, mathematics, physics, computer science, biology, plant and animal sciences, and industrial technology.
Letter from the Chancellor

We are delighted about the new enhancements in Science, Technology, Engineering, and Mathematics at the University of Arkansas at Pine Bluff (UAPB). As one of our premier programs at UAPB, the STEM Academy continues to provide students the opportunity to thrive in a professional STEM community. This unique experience and connection with scholastic resources helps create relevance to classroom learning and fosters personal development. Our STEM majors reflect the diversity present at UAPB, breaking stereotypes about women and minorities in STEM fields.

As we look forward to growth and improvement in our STEM disciplines, the experience of the student is paramount. Increasing the breadth and depth of our programs, upgrading lab equipment, and improving learning spaces are all important steps in providing a holistic learning environment that stimulates excitement for discovery. We have already made great strides with the completion of our STEM Building and Conference Center, which we will celebrate with an Open House ceremony during 2014 Homecoming Week.

Needless to say, we are well on track to achieving the gold standard in overall academics. We have diverse faculty who are devoted to high quality instruction and student preparation. They are enthusiastic about collectively engaging in research and instruction that addresses energy, environment, education, health care, and other grand challenges with our students.

It is with great pleasure that we express our sincere gratitude to our administrators, stakeholders, and supporters who have displayed extraordinary zeal and commitment to the success of our STEM Academy. I am confident that through our collaborative efforts, we can help build a stronger state and nation through Science, Technology, Engineering, and Mathematics careers.

Sincerely,

Laurence B. Alexander, Ph.D.
Chancellor
In Pursuit of STEM Excellence

2003-2014 has been a time of excitement, collaboration and growth for the University of Arkansas at Pine Bluff in STEM disciplines. Starting in 2003 with four science departments—Biology, Chemistry-Physics, Industrial Technology and Mathematics, and the Computer Science Program—under the leadership of the Vice Chancellor for Academic Affairs, a collaborative was formed which created the STEM Academy focused on interdisciplinary, innovative interventions to help STEM Scholars excel in their majors, persist, and become well-prepared STEM graduates. By 2008, success of these interventions, the growth of funded programs, and the increase in the number of STEM Scholars exceeded the 1200 sq. ft. assigned suite in the Walker Research Center. In response, the university administration, STEM Scholars, STEM leadership team and many supportive individuals helped to herald the work of the STEM Academy at the University of Arkansas at Pine Bluff and the value of an investment in a facility to appropriately house this productive Academy. These voices were heard and on October 20, 2010, Dr. B. Alan Sugg, then President of the University of Arkansas System, sent a historic letter to Chancellor Lawrence A. Davis, Jr. authorizing, under Board of Trustee Policy 740.1, the university to begin the search for an architect for the University of Arkansas at Pine Bluff STEM Academy and Conference Center Project. Receipt of that letter was a watershed moment for the University of Arkansas at Pine Bluff and for its STEM Academy. We appreciate all who gave assistance along the way.

On November 4, 2014 we celebrate another milestone for the STEM Academy… the completion of the STEM facility. The journey to November 4, 2014 has been long, intense, rewarding and memorable. We remember Quality Education for Minorities, a firm that focuses on technical assistance to HBCUs in preparation of more successful grant proposals. QEM was there for the University of Arkansas at Pine Bluff when we developed our first planning grant for the STEM Academy. Other persons or organizations that provided pivotal technical assistance were Dr. Robyn Hannigan, then a professor at Arkansas State University; Dr. Gail McClure of Arkansas Science and Technology Authority (ASTA); Dr. Cecil McDermott, a retired university mathematics professor who was working with the ASTA on education programs, especially in technology; Drs. Kelvin Kirby and Freddy Frazier of Prairie View A & M University; Dr. Abdul Muhammed of Jackson State University; Dr. Suzanne Mitchell of the Arkansas Department of Education, and Mrs. Carolyn McCoy, then Director for the Arkansas River Educational Service Cooperative.

Critical also in helping to build the foundation for the STEM Academy were (1) The STEM Academy Advisory Board; (2) the embracement by the Deans for the School for Arts and Science (first Dr. William Willingham and later, after the demise of Dean Willingham, Dr. Clifton Orr); (3) The untiring support of each science department chair and coordinator (Dr. Charles Colen, Mathematical Sciences and Technology; Dr. Peter Iyere, later Dr. Antonie Rice, Chemistry/Physics; Dr. Clifton Orr, later Dr. Anissa Buckner, Biology; and Dr. Jessie Walker, Computer Science; along with Dr. Mansour Mortazavi and Dr. Aslam Chowdhury); (4) A committed staff; (5) A supportive administration; (6) the subsequent addition of agriculture; and (7) funding from the National Science Foundation for the planning grant and the comprehensive grants.

With a dream of enriching science at the University of Arkansas at Pine Bluff to increase our students’ competitiveness in the knowledge-based economy and to help diversify the STEM workforce, we ventured out—full of faith, ready to invest the energy, creativity and long hours required, and fully convinced that we could impact STEM enrollment, retention, graduation and entry to competitive STEM employment and/or graduate or professional school.

As we benchmark a major accomplishment in the pursuit of STEM Excellence at the University of Arkansas at Pine Bluff, the opening of a facility dedicated to innovations in preparing students for STEM careers, (Continue)
we proudly note that from our first NSF-HBCU-UP comprehensive grant in 2005 to Fall 2014, STEM Scholars enrollment has grown from 667 to 797; retention rose from 65.2% to 93.3%, and degrees conferred rose from 82 to 124. The average ACT score of STEM Scholars has increased from 17 in 2005 to 22 in 2012-2013. In 2011-2012 a new Master’s degree in Computer Science and Technology was added and the M.Ed. Programs in Science and Mathematics Education were enriched. The graduate program enrichment and expansion activities were funded by the U.S. Department of Education HBCU Master Degree Program in STEM. Today, there are 229 undergraduates and (9) graduate students enrolled in the STEM Academy programs.

Funding for the construction project and our STEM enrichment programs has been provided by several external sources. For the new STEM facility, the U.S. Department of Education HBCU Master Degree Program in STEM provided the first $1.5 million. Additional funding ($6,497,680) for construction of the STEM Academy and Conference Center was provided by Title III Strengthening HBCU Program, Student Aid Fiscal Responsibility (SAFRA). Construction funds were also received from Governor Mike Beebe ($750,000); Senator Linda Chesterfield ($100,000); Representative Charles Armstrong ($20,000); St. Paul Missionary Baptist Church, Dr. Carolyn Blakely, and the taxpayers of Arkansas. Since 2002, the STEM Academy has received $13,625,935 for innovative enrichment of STEM education and research training. The funding agencies are the National Science Foundation, the U.S. Department of Education HBCU Master Degree Program in STEM and the Arkansas Science and Technology Authority. Overall, the STEM Academy has generated $16M in external funds to support its academic enrichment programs and the STEM Academy and Conference Center construction project. Deep gratitude is expressed to all persons and agencies who invested in the STEM enrichment programs and our construction project.

We pause on this benchmark date, November 4, 2014, to extend thanks to all who have helped to make our accomplishments possible, to celebrate the STEM Scholars, and to re-commit to our pursuit of excellence in STEM education for the advancement of a diversified and well prepared professional STEM workforce for Arkansas, the United States and the global community.

Mary E. Benjamin, Vice Chancellor for Research, Innovation and Economic Development
Principal Investigator for the STEM Scholars Academy
University of Arkansas at Pine Bluff
UAPB STEM ACADEMY LEADERSHIP

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President

Brianna Allen  
(Chemistry Major)  
Treasurer

Kionna Henderson  
(Chemistry Major)  
Secretary

Amari Fulton  
(Industrial Technology Management and Applied Engineering Major)  
Project Manager

LaShalla Humphrey  
(Chemistry Major)  
Historian

Ebony Cotton  
(Chemistry Major)  
Communications Liaison

Aliyah Glover  
(Biology Major)  
Sergeant at Arms

Kendall Harris  
(Industrial Technology Management and Applied Engineering Major)  
Mr. STEM

Saige Davis  
(Biology Major)  
Ms. STEM

Dominecia Foots  
(Biology Major)  
Vice President
## Undergraduate Programs

<table>
<thead>
<tr>
<th>Major</th>
<th>Fall 2005</th>
<th>Fall 2006</th>
<th>Fall 2007</th>
<th>Fall 2008</th>
<th>Fall 2009</th>
<th>Fall 2010</th>
<th>Fall 2011</th>
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<th>Fall 2013</th>
<th>Fall 2014</th>
<th>% Change Fall 2005 - Fall 2014</th>
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<td>159</td>
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<td>28</td>
<td>35</td>
<td>44</td>
<td>54</td>
<td>49</td>
<td>52</td>
<td>54</td>
<td>49</td>
<td>51</td>
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<tr>
<td>Computer Science</td>
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<td>110</td>
<td>112</td>
<td>121</td>
<td>127</td>
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<td>114</td>
<td>100</td>
<td>104</td>
<td>104</td>
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<tr>
<td>Industrial Technology</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Management and Applied Engineering</td>
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<td>119</td>
<td>124</td>
<td>157</td>
<td>176</td>
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<td>158</td>
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<td>190</td>
<td>187</td>
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<td>230</td>
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<td>Mathematics</td>
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<td>Physics</td>
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<td>3</td>
<td>7</td>
<td>5</td>
<td>6</td>
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<td>7</td>
<td>4</td>
<td>7</td>
<td>6</td>
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<tr>
<td><strong>TOTAL - STEM</strong></td>
<td>667</td>
<td>621</td>
<td>647</td>
<td>716</td>
<td>791</td>
<td>842</td>
<td>769</td>
<td>800</td>
<td>797</td>
<td>797</td>
<td>19.5%</td>
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<tr>
<td><strong>TOTAL - UAPB (UG)</strong></td>
<td>3,132</td>
<td>3,051</td>
<td>3,099</td>
<td>3,388</td>
<td>3,651</td>
<td>3,283</td>
<td>3,063</td>
<td>2,724</td>
<td>2,521</td>
<td>2,400</td>
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</tr>
<tr>
<td>% STEM/TOTAL UAPB</td>
<td>21.3%</td>
<td>20.4%</td>
<td>20.9%</td>
<td>21.1%</td>
<td>21.7%</td>
<td>25.6%</td>
<td>25.1%</td>
<td>29.4%</td>
<td>31.6%</td>
<td>33.2%</td>
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## Master's Programs

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<th>Fall 2007</th>
<th>Fall 2008</th>
<th>Fall 2009</th>
<th>Fall 2010</th>
<th>Fall 2011</th>
<th>Fall 2012</th>
<th>Fall 2013</th>
<th>Fall 2014</th>
<th>% Change Fall 2005 - Fall 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science &amp; Technology</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>8</td>
<td>15</td>
<td>-</td>
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<tr>
<td>Mathematics Education</td>
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<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>3</td>
<td>100.0%</td>
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<tr>
<td>Science Education</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>8</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>166.7%</td>
</tr>
<tr>
<td><strong>TOTAL - STEM</strong></td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>15</td>
<td>13</td>
<td>16</td>
<td>21</td>
<td>26</td>
<td>766.7%</td>
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<tr>
<td><strong>TOTAL - UAPB (GR)</strong></td>
<td>99</td>
<td>77</td>
<td>101</td>
<td>137</td>
<td>141</td>
<td>145</td>
<td>125</td>
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<td>94</td>
<td>113</td>
<td>14.1%</td>
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<tr>
<td>% STEM/TOTAL UAPB</td>
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<td>5.2%</td>
<td>5.9%</td>
<td>5.8%</td>
<td>6.4%</td>
<td>10.3%</td>
<td>10.4%</td>
<td>15.4%</td>
<td>22.3%</td>
<td>23.0%</td>
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</tr>
</tbody>
</table>

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### Undergraduate Enrollment

- Undergraduate Total-STEM
- Undergraduate Total-UAPB

### Graduate Enrollment

- Graduate Total-STEM
- Graduate Total-UAPB
### Retention

**STEM Majors**

#### Student Retention

- **Academic Year**: 2005-2006
  - % Arkansas Residents: 60.50%
  - % Arkansas Residents from Jefferson County: 56.40%
  - Average High School GPA: 2.86
  - Average ACT Composite Score: 17
  - First-Year Retention Rate: 56.30%
  - STEM First-Time Full-Time Freshmen: 66.20%
  - STEM First-Time Academy Students: 65.20%

- **Academic Year**: 2006-2007
  - % Arkansas Residents: 56.00%
  - % Arkansas Residents from Jefferson County: 50.50%
  - Average High School GPA: 2.82
  - Average ACT Composite Score: 17
  - First-Year Retention Rate: 54.30%
  - STEM First-Time Full-Time Freshmen: 60.40%
  - STEM First-Time Academy Students: 81.80%

- **Academic Year**: 2007-2008
  - % Arkansas Residents: 60.00%
  - % Arkansas Residents from Jefferson County: 54.80%
  - Average High School GPA: 2.89
  - Average ACT Composite Score: 17
  - First-Year Retention Rate: 57.00%
  - STEM First-Time Full-Time Freshmen: 64.20%
  - STEM First-Time Academy Students: 82.10%

- **Academic Year**: 2008-2009
  - % Arkansas Residents: 55.70%
  - % Arkansas Residents from Jefferson County: 46.70%
  - Average High School GPA: 2.86
  - Average ACT Composite Score: 17
  - First-Year Retention Rate: 60.40%
  - STEM First-Time Full-Time Freshmen: 69.10%
  - STEM First-Time Academy Students: 80.40%

- **Academic Year**: 2009-2010
  - % Arkansas Residents: 54.40%
  - % Arkansas Residents from Jefferson County: 52.40%
  - Average High School GPA: 2.77
  - Average ACT Composite Score: 17
  - First-Year Retention Rate: 63.90%
  - STEM First-Time Full-Time Freshmen: 69.80%
  - STEM First-Time Academy Students: 80.00%

- **Academic Year**: 2010-2011
  - % Arkansas Residents: 54.50%
  - % Arkansas Residents from Jefferson County: 50.80%
  - Average High School GPA: 2.77
  - Average ACT Composite Score: 17
  - First-Year Retention Rate: 57.00%
  - STEM First-Time Full-Time Freshmen: 65.00%
  - STEM First-Time Academy Students: 81.30%

- **Academic Year**: 2011-2012
  - % Arkansas Residents: 52.30%
  - % Arkansas Residents from Jefferson County: 45.20%
  - Average High School GPA: 3.37
  - Average ACT Composite Score: 21
  - First-Year Retention Rate: 54.60%
  - STEM First-Time Full-Time Freshmen: 63.90%
  - STEM First-Time Academy Students: 87.00%

- **Academic Year**: 2012-2013
  - % Arkansas Residents: 59.60%
  - % Arkansas Residents from Jefferson County: 41.60%
  - Average High School GPA: 3.43
  - Average ACT Composite Score: 22
  - First-Year Retention Rate: 56.20%
  - STEM First-Time Full-Time Freshmen: 58.00%
  - STEM First-Time Academy Students: 93.10%

- **Academic Year**: 2013-2014
  - % Arkansas Residents: 70.00%
  - % Arkansas Residents from Jefferson County: 47.62%
  - Average High School GPA: 3.42
  - Average ACT Composite Score: 22
  - First-Year Retention Rate: 62.10%
  - STEM First-Time Full-Time Freshmen: 70.30%
  - STEM First-Time Academy Students: 93.30%

#### First-Year Retention Rates

<table>
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<tr>
<th>Fall</th>
<th>Gender</th>
<th>Fall Cohort Enrollment</th>
<th># Retained After 1st Year</th>
<th>First-Year Retention Rate</th>
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<tbody>
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<td>85.7%</td>
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<tr>
<td>2008</td>
<td>Female</td>
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<td>10</td>
<td>71.4%</td>
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<tr>
<td>2008</td>
<td>Total</td>
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<tr>
<td>2009</td>
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<td>5</td>
<td>83.3%</td>
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<tr>
<td>2009</td>
<td>Female</td>
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<td>80.0%</td>
</tr>
<tr>
<td>2009</td>
<td>Total</td>
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<td>13</td>
<td>81.3%</td>
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<tr>
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<td>12</td>
<td>100.0%</td>
</tr>
<tr>
<td>2011</td>
<td>Total</td>
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<td>20</td>
<td>95.2%</td>
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<td>2012</td>
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<td>11</td>
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<td>88.9%</td>
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<tr>
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<td>Total</td>
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<td>27</td>
<td>93.1%</td>
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<td>2013</td>
<td>Male</td>
<td>11</td>
<td>10</td>
<td>90.9%</td>
</tr>
<tr>
<td>2013</td>
<td>Female</td>
<td>19</td>
<td>18</td>
<td>94.7%</td>
</tr>
<tr>
<td>2013</td>
<td>Total</td>
<td>30</td>
<td>28</td>
<td>93.3%</td>
</tr>
</tbody>
</table>
The University of Arkansas at Pine Bluff (UAPB) held its 10th Annual Science Fair Exposition (Expo) on February 18, 2014. The Expo was held in the arena of the Kenneth L. Johnson, Sr. HPER Complex. The date of the Expo was set to enhance the readiness and competitiveness of students for the regional fairs at Monticello, Jonesboro, Batesville, Central Arkansas and the state fair at the University of Central Arkansas in Conway. It is conducted as an affiliated regional fair, following the state and national mandated rules governing research and the presentation/display of results. There were eighteen (18) project categories to choose from:

- Animal Sciences
- Biochemistry
- Cellular and Molecular Biology
- Chemistry
- Computer Science
- Earth and Planetary Science
- Energy and Transportation
- Engineering: Electrical and Mechanical
- Engineering: Materials and Bioengineering
- Environmental Management
- Environmental Sciences
- Mathematical Sciences
- Medicine and Health Sciences
- Microbiology
- Physics and Astronomy
- Plant Sciences
- Social & Behavioral Sciences
- Teams

There were 247 attendees in the 2014 Science Fair Exposition. The Junior Division consisted of 114 participants. The Senior Division consisted of 133 participants.

The Best of Fair Winner was Ms. Peyton Aulds, a tenth grade student from Ridgway Christian School. The title of her project was “Storm Water Solutions II”. Ms. Aulds received a full academic and tuition scholarship to the University of Arkansas at Pine Bluff.

of Arkansas at Pine Bluff. She proceeded to Monticello where she was named overall winner in the Southeast Arkansas Regional Science Fair for her two year project on Storm Water Solutions.

Ms. Peyton Aulds, Best of Fair winner in the 2014 Science Fair Exposition at the University of Arkansas at Pine Bluff

UAPB 11th Annual Science Fair Exposition will be held
February 12, 2015
in the
Arena of the Kenneth L. Johnson, Sr. HPER Complex

Peyton Aulds wins the Southeast Arkansas Regional Science Fair in Monticello, AR
Each year a number of 10-12th grade students are selected to attend the STEM Saturday Academy where they conduct experiments in various science, technology, engineering and mathematics (STEM) areas.

The track for teachers focuses on benchmark measures in science and mathematics along with strategies to recruit students to major in STEM disciplines.

In 2013, the STEM Saturday Academy students conducted experiments in the areas of Chemistry, Biology, Computer Hardware, Computer Animation, Industrial Technology, Mathematics, Robotics, Global Positioning Systems (GPS) and Geographic Information System (GIS).

In 2011, HBCU-UP STEM Scholars Academy developed a partnership with the Little Rock School District, which increased participation for 2012 by 58% for student participants and 36% for teacher participants. In 2013 and 2014, participation remained stable.
STEM Summer Academy

The STEM Summer Academy is a bridge program that offers the necessary skills and knowledge to pre-college high school graduates to help make a seamless transition to college. STEM Scholars receive room and board. The STEM Scholars Summer Academy is designed to enhance, enrich, and refresh the incoming freshmen in mathematics, chemistry, technical writing skills, biology, social decorum, and campus survival skills. Student achievement is assessed during and after the program.

HBCU-UP offered a seven week STEM Scholars Summer Academy for a total of twenty-six students in 2014. Each student received room and board for the length of the seven week period as well as a stipend for attending the Summer Academy.

<table>
<thead>
<tr>
<th>Typical Daily Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:15A-7:00A Physical Fitness</td>
</tr>
<tr>
<td>7:00A-8:00A Breakfast</td>
</tr>
<tr>
<td>8:10A-9:30A Mathematics</td>
</tr>
<tr>
<td>9:35A-10:55A Biology LAB</td>
</tr>
<tr>
<td>11:00A-12:00P Technical Writing</td>
</tr>
<tr>
<td>12:00P-1:15P Lunch</td>
</tr>
<tr>
<td>1:20P-2:40P Chemistry LAB</td>
</tr>
<tr>
<td>2:45P-3:45P Coll Surv/Comp Sci</td>
</tr>
<tr>
<td>4:00P-4:45P Professional Dev.</td>
</tr>
<tr>
<td>4:50P-5:30P Dinner</td>
</tr>
<tr>
<td>6:30P-8:30P Tutorial/Study Time</td>
</tr>
</tbody>
</table>

ARK-LSAMP offered a six week Pre-First Year Summer Institute in 2014. Each student received room and board for the length of the six week period as well as a stipend for attending the Summer Institute. Students in the program are drawn from six four-year colleges/universities in the 10-member alliance.
STEM Scholars Academy

Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)

The National Science Foundation (NSF) awards HBCU-UP grants to help increase the number of minority students in the areas of Science, Technology, Engineering and Mathematics. The University of Arkansas at Pine Bluff (UAPB) has formed partnerships with eight targeted school districts and with research institutions in planning a comprehensive program to increase the number of minority students in STEM areas. The program consists of a transitional summer academy, mentoring, research internships, faculty development, equipment upgrades, curricula redesign and infrastructure enhancement.

At the STEM Scholars Academy level, the scholars are expected to perform and transition from college students to knowledgeable professionals within one of the STEM areas. While obtaining their education, STEM Scholars will perform research projects that will further enhance their knowledge of their field of study.

The University of Arkansas at Pine Bluff STEM Scholars Academy includes students from the following disciplines:

- **BIOLOGY**– Prepares students for careers in research, health sciences, and related fields
- **CHEMISTRY**– Prepares students for careers in chemistry or work in research
- **COMPUTER SCIENCE**– Prepares students for careers in the computer industry, advanced graduate studies in information sciences, or work as computer programmers
- **INDUSTRIAL TECHNOLOGY MANAGEMENT AND APPLIED ENGINEERING**– Prepares students for diverse careers such as production management, electronics design, quality control management, construction management, quality engineering, and inventory management
- **MATHEMATICS**– Prepares students to become statisticians or for related careers with emphasis on data-based problem-solving and decision-making
- **PHYSICS**– Prepares students for careers in diverse areas such as engineering, research, work as a physicist or science educator
- **PLANT AND ANIMAL SCIENCES**– Prepares students for graduate school and careers in the areas of plant and animal sciences

**Requirements to become HBCU-UP STEM Scholar**

- Must have a high school GPA of 3.0 or higher
- Must have a composite ACT score of 19 or above
- Must complete all application requirements and forms to be submitted in the institution
- Must declare a STEM major

Students accepted into the HBCU-UP STEM Scholars program are required to attend regular weekly meetings. Each of those STEM Scholars will also receive a paid research experience throughout the Fall and Spring semesters upon adhering to all of the requirements of the program (based on award of external funding).
The National Science Foundation funds STEM alliances to increase the number of underrepresented minority students in STEM majors and graduates from campuses that have developed a collaborative plan with a shared vision to increase the number of underrepresented minority STEM professionals.

**ARK-LSAMP Member Institutions**

- University of Arkansas at Pine Bluff
- Arkansas State University
- Philander Smith College
- Phillips Community College of the University of Arkansas
- Pulaski Technical College
- University of Arkansas, Fayetteville
- University of Arkansas at Little Rock
- University of Arkansas at Monticello
- Southeast Arkansas College

ARK-LSAMP has not only helped to prepare its students for campus leadership positions, it has also provided rich research internship experiences for the students. Among the eight ARK-LSAMP programs, there were 80 internships provided with five being international. Many of these sites were cultivated through the Guest Lecturer Series which has manifold purposes: role modeling of STEM professionals, first hand contact by university, industry and governmental agency representatives with STEM students; and introduction of students to diverse research models, sites and the following STEM disciplines:

**BIOLOGY**—Prepares students for careers in research, health sciences, and related fields

**CHEMISTRY**—Prepares students for careers in chemistry or work in research

**COMPUTER SCIENCE**—Prepares students for careers in the computer industry, advanced graduate studies in information sciences, or work as computer programmers

**INDUSTRIAL TECHNOLOGY MANAGEMENT AND APPLIED ENGINEERING**—Prepares students for diverse careers such as production management, electronics design, quality control management, construction management, quality engineering, and inventory management

**MATHEMATICS**—Prepares students to become statisticians or for related careers with emphasis on data-based problem-solving and decision-making

**PHYSICS**—Prepares students for careers in diverse areas such as engineering, research, work as a physicist or science educator

**PLANT AND ANIMAL SCIENCES**—Prepares students for graduate school and careers in the areas of plant and animal sciences

**Requirements to become an ARK-LSAMP STEM Scholar**

- Must have a high school GPA of 3.0 or higher
- Must have a composite ACT score of 19 or above
- Must complete all application requirements and forms to be submitted to the institution prior to Fall of the school year of interest
- Must declare a STEM major at one of the Alliance Institutions

STEM students accepted into ARK-LSAMP program are required to attend regular weekly meetings. Paid research experiences are offered during the Fall and Spring semesters in compliance with grant guidelines for the program.
ARK-LSAMP Alliance Members

University of Arkansas at Pine Bluff
Dr. Anissa E. Buckner
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Phone: (870) 575-7113

Arkansas State University
Dr. Hashim Ali
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Phone: (870) 972-3215

Philander Smith College
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Phone: (501) 370-5337

Phillips Community College of the University of Arkansas
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Phone: (870) 338-6474

Pulaski Technical College
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Phone: (501) 812-2268

University of Arkansas, Fayetteville
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E-mail: tic@uark.edu
Phone: (479) 575-5346

University of Arkansas at Little Rock
Dr. Janet Lanza/ Dr. Jim Winter
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Phone: (501) 569-3500

University of Arkansas at Monticello
Dr. Marvin Fawley
E-mail: fawley@uamont.edu
Phone: (870) 460-1165
*University Sustained

Southeast Arkansas College
Dr. Kaleybra Morehead
E-mail: kmorehead@seark.edu
Phone: (501) 812-2268
Our dream has been accomplished and the new STEM Academy and Conference Center is finally here. Woods Architectural Group and Con-Real provided leadership for construction of the $10M, 29,000 Sq. Ft. facility devoted to academic collaboration, teaching, learning, student support, and program administration along with multidisciplinary/multifunctional research and education labs. The new STEM Complex has a contemporary flair and uses materials related to the existing campus architecture. The building is a two-story complex featuring ample natural lighting and “green” building technology and utilizes locally available green building materials. The emergency generators for the facility utilize locally manufactured biodiesel fuel produced from Arkansas soy beans. The complex has other energy saving features such as energy saving glass, automated window blinds, use of solar power, grey water recovery system and an interactive building control system to allow students to monitor use.
Dr. Sederick C. Rice, assistant professor of biology at the University of Arkansas at Pine Bluff (UAPB), was awarded a $176,000 instrumentation grant from the Arkansas IDeA Network of Biomedical Research Excellence (Arkansas IN-BRE). Dr. Sederick C. Rice is the principal investigator (PI) and Dr. Antonie Rice, assistant dean of the School of Arts and Sciences, is the co-principal investigator (Co-PI) of a project entitled Generating Enhanced Teaching through Science Education and Technology (GET-SET). GET-SET is an instrumentation grant project designed to acquire and utilize immersive learning and research technology in the form of a low-cost turn-key 3-D visualization system. The main components of the GET-SET project are designed to develop a 3-D visualization center at UAPB to improve STEM faculty professional development, and the application and use of 3-D visualization in STEM classroom and research settings on the K-12, undergraduate, and graduate levels. GET-SET initiatives and collaborations with Valparaiso University and SHODOR, a national resource for computational science education, will help UAPB develop novel courses and training modules in computational sciences and modeling (CSM) and develop summer training institutes that support collaborations and pedagogy sharing between UAPB STEM faculty and partnerships with K-12 science and math teachers throughout the Arkansas Delta. Funds from GET-SET were used to develop a 3-D visualization center in Rust Technology Hall at UAPB.

This project represents a critical step to providing a minority serving institution (MSI) with equipment that can enhance professional development for UAPB STEM faculty in areas of biology, chemistry, physics, computer science, and math as well as enhance community outreach to K-12 science and math teachers from partnership rural, underserved, and high poverty school districts in the Arkansas Delta. The GET-SET initiative will also enrich undergraduate and graduate student development at an MSI in CSM and 3-D visualization by engaging students’ higher order thinking abilities to create more literate problem solvers, logical thinkers, and innovators in the area of computational architectures and 3-D visualization.
Our STEM Scholars Engage in Internship Experiences All Over the World!

2011-2014 Internship Sites

American Greetings, Inc.
Arkansas Center for Space and Planetary Science
Arkansas INBRE
Ball Aerospace & Technologies Corporation
Boeing Corporation
Booz, Allen and Hamilton
Boston Specific
Census Bureau
Children's Defense Fund Freedom Schools
Cincinnati Children's Hospital
City of Pine Bluff
Cornell University
Dale Bumpers National Rice and Research Center
Dallas Zoo
Department of the Army, Joint Munitions Command
Eaton Corporation
Genentech
General Motors
Graduate/Florida A&M University
Graduate/General Election Aviation
Graduate/Purdue University
Graduate/University of Arkansas for Medical Sciences
Graduate/University of Tennessee at Knoxville
Hensel Phelps Construction, Co.
Howard University
Iowa State University
Jackson State University
John Deere
John Hopkins University
Johnson & Johnson Corporation
Monsanto
NASA Science and Technology Institute
National Center for Toxicological Research
National Oceanic Atmospheric Administration
Nationwide Children's Hospital
Natural Resource Conservation Service
North Dakota State University
North Texas Health Science Center
Nucor Yamato Steel
Oak Ridge National Laboratory
Pine Bluff Arsenal
Pine Bluff School District
Proctor and Gamble
Ring
Rockwell Collins
Texas A&M University-Biochemistry & Biophysics Dept.
Texas Highway Department of Transportation
The Pennsylvania State University College of Medicine
Tri-State International
Tyson Foods, Inc
United Health Science Center
United States Steel
United Water
University of Alabama-Tuscaloosa
University of Arkansas at Fayetteville
University of Arkansas at Pine Bluff
University of Arkansas for Medical Sciences
University of Central Arkansas
University of Cincinnati
University of Louisville
University of Michigan
University of Minnesota
University of North Texas Health Science Center
University of Pittsburgh
University of South Florida
University of Utah School of Dentistry
URS Corporation - Washington Group
Vanderbilt Summer Science Academy
Vector Marketing
Walmart
Walt Disney World
Washington School of Medicine
Washington State University
Hello! My name is Christopher M. Jones and I am a senior at the University of Arkansas at Pine Bluff majoring in Industrial Technology Management and Applied Engineering with an emphasis in Manufacturing. I have been a proud member of the STEM Scholars Academy since 2011 and now serve as the STEM student body President for the academic year 2014-2015. During my tenure at the university, I have been afforded the opportunity to complete three internships with several different companies and gain valuable work experience in my field of study.

My first internship was with Tyson Foods in Pine Bluff AR, as the Materials Warehouse Intern. During this experience, I was able to learn and develop quality skills in warehousing and logistics. I assisted personnel in managing inventory on hand and incoming to the plant by validating physical inventory with virtual inventory in their System Applications Products (SAP) system. One of my primary projects was to develop a process to ensure that material on all incoming trailers was accounted for daily on plant property to prevent overages in inventory which could potentially lead to expired material and loss of profit dollars for the company. To solve this problem, I designed a form that tracked material on incoming trailers and trained personnel to use the process which resulted in the accurate counts and reduced overages in inventory for the warehouse.

During the Fall 2013 semester, I worked at Rockwell Collins, Inc. in Cedar Rapids, Iowa as an Engineering intern. Rockwell Collins specializes in the design, production and support of various solutions in the aerospace and defense industry including flight deck avionics, cabin electronics, and mission communications. During this experience, I worked in the Enterprise Sourcing Department, which is responsible for developing strategic plans to source materials needed for production from various suppliers. In this role I had a major project that involved creating a new file 5S management system for our supplier contracts/agreements and purchase orders. I developed a standard work process that required all case files, purchase orders, agreements, and contracts for Enterprise sourcing into alphanumeric order so that files could be easily accessed and tracked in a proper protocol. In addition, I was able to save the department company $200K in improved cash flow by analyzing numerous agreements in the system and accurately updating their payment terms in the SAP system. As a result of my work, I was featured in the corporate intern recruitment video and company newsletter.

The STEM Scholars Academy annual trip to the National Society of Black Engineers conference was where I secured my third internship this past summer with Procter & Gamble in Alexandria, LA. During this experience, I worked in Supply Network Operations (SNO) as a Process Engineering Intern and was responsible for delivering results on six projects. My two primary projects involved designing a new storage area for corrugate material in the warehouse and developing a database to track daily over-weight trailers. I proposed a design for installation of a new pallet flow rack system that will increase their current storage capacity by three times on site which could potentially save $100M annually if approved. In addition, the access database I designed identified that one of P&G carrier’s equipment was overweight. As a result, I helped develop a plan to reduce current carrier weight targets that will eliminate the approximately 862K that department expected to spend during the 2014-15 fiscal year. At the end of the summer, I presented my projects results to the plant leadership team and as result I was recommended for full time hire to the plant manager at the facility and expect to receive my offer in September.

The STEM Scholars Academy has truly been a HUGE benefit during my collegiate career because it has created opportunities for me that I have never imagined. I am truly grateful, to have mentors within STEM that have helped coach and develop me into the young man I am today. As I prepare to graduate in May, I feel like have been adequately prepared through STEM at this prestigious university to be competitive and succeed in my future career.

My name is Jade Kirk and I am a senior at the University of Arkansas at Pine Bluff majoring in Animal Science. As a STEM Scholar, I was able to partner with Career Services, which helped me to participate in an internship with the USDA Wildlife Services in Latrobe, PA during the summer of 2014. During my experience, I was able to observe what Wildlife Services does and link it to my field of study. The majority of my time as an intern was spent performing office duties such as drafting documents and packets to send out to the community to help build awareness about the variety of services the USDA provides within communities. As an Animal Science major, this opportunity enhanced my future by exposing me to career options with the USDA Wildlife Services post-graduation. I was able to receive a salary, transportation and paid housing during my internship. Overall, I really enjoyed my internship experience.
Andrea Jenkins

I am a senior and chemistry major participating in the STEM Scholars Academy at the University of Arkansas at Pine Bluff. This summer I returned to Pennsylvania State Hershey College of Medicine in Hershey, PA for my second internship. I attended various professional workshops and medical seminars, performed research in a biomedical lab and was mentored by immunologists, microbiologists and pharmacologists. I learned how to conduct biomedical experiments, write abstracts and create medical presentations. This experience helped me to understand the patience and responsibility required for medical research. While in Pennsylvania, I made great connections with biomedical scientists, post-doctorate students and undergraduate students with similar career goals. I am grateful for this opportunity that STEM has afforded me.

Curtis Anthony Smart

I am a third year STEM program participant. I was selected as a participant in the Centers for Disease Control and Prevention/Thurgood Marshall College Fund Student Ambassador Program (CDC/TMCF). The Thurgood Marshall College Fund team visited 30 schools and selected 20 students to participate in an internship in Atlanta at the CDC Century Center Campus.

As a CDC Ambassador Summer Intern, my internship project title was multiplex analysis of antibody responses to trachoma and other neglected tropical diseases. I worked in a lab in the Center of Global Health. The internship was to assist with analysis of large sample sets collected as part of health impact studies in several East African countries. I was part of a team working on developing and validating antibody-based tests for surveillance of a large number of neglected tropical diseases. We worked on antibody-based tests for trachoma, an ocular infection caused by the bacterium Chlamydia trachomatis. Each day I was responsible for organizing and processing blood spots, assisting with the Luminex assay (this assay allows for measurement of antibodies against up to 100 antigens in a single well), and assisting in moving the trachoma serology tests to different formats.

My experience with the CDC was nothing short of amazing. I was able to meet awesome people from across the country. I learned about the process of becoming a government employee as well as professionalism in corporate America. I was invited back as an intern in 2015.

This summer I also participated in the third-annual Anheuser-Busch Legends of the Crown Leadership Symposium in St. Louis. Legends of the Crown, an Anheuser-Busch program in partnership with the United Negro College Fund (UNCF), a program that encourages development of the next generation leaders. For the second consecutive year I received $5,000 to use toward pursuing a degree in Biology at the University of Arkansas at Pine Bluff. I was one of 30 Legends of the Crown Scholars. During the event the scholars visited area landmarks and worked closely with Anheuser-Busch and UNCF executives as well as St. Louis community leaders. I am grateful to have had the opportunity to be a part of this program that celebrates the “Great Kings and Queens of Africa”, the rich African history, and the timeless lessons of leadership each king and queen exemplified.
Kendall Harris

My name is Kendall Harris and I am a senior at the University of Arkansas at Pine Bluff majoring in Industrial Technology Management and Applied Engineering (ITMAE). As a STEM Scholar, I was afforded the opportunity to participate in the 38th Annual Convention hosted by the National Society of Black Engineers. The conference allowed me to network with several companies, which led to my obtaining a co-op with Toyota Manufacturing & Engineering America in Erlanger, KY as a production control/logistics operation intern Fall 2013. My project during this co-op consisted of enhancing abnormal event tracking (AET) tool, creating training manual and using it to instruct a team of seven specialists on its use. I also was given a chance to manage Memphis cross docks (MCD) and utilize AutoCAD to validate the MCD layouts. This co-op gave me my first opportunity to experience how life will be post-college. I was given a housing stipend (in addition to my hourly full-time compensation), but was responsible for locating housing that fit the housing allowance afforded to me. This started my experience in learning how to budget and balance my finances. Just as I would in life after college, I was responsible for utilities, rent, and everything involved in living independently. Having this co-op allowed me to experience a diverse work environment and learn how to interact with people from all over the world. It also afforded me a second experience with the company as an intern with the production planning group during the summer of 2014. During this internship, I helped kaizen their monthly production framework of all of the vehicle manufacturing plants. Upon graduation, both of these opportunities will allow me to be a competitive applicant for permanent employment with a proven successful work history within Toyota.

Johnnieshia Frazier

My name is Johnnieshia Frazier. I am a junior majoring in agriculture plant and soil sciences. This summer I interned at the University of Arkansas at Fayetteville with the George Washington Carver Research Program (GWCRP). During the internship, I was mentored by Ainong Shi and Jienbeing Ma within the horticulture program. My research allowed me to study the genetic diversity of chicory (Cichorium intybus). I was responsible for growing 250 lines of chicory and conducting genetic research. For my research, I randomly selected twenty-three chicory (Cichorium intybus) that were DNA extracted and PCR amplified using 12 SSR markers. The results showed that different PCR patterns were observed in each SSR markers. The research provided an initial for genetic diversity research in chicory. This internship experience help me gain hands on knowledge of laboratory techniques and procedures such as conducting DNA extraction, running Polymerase Chain Reaction (PCR) and analyzing the results. It served as a refresher for some general chemistry laboratory work such as creating different chemical buffers, solutions and compounds. Along with the academic aspects of the program, both personal and professional enrichment activities were presented to allow me the chance to explore different career paths within my major and narrow down the specifics of future educational aspirations, as well as allowing me to network with my peers, instructors, and agriculture professionals.

Tonisha Holiday

My name is Tonisha Holliday. I am a junior at the University of Arkansas at Pine Bluff majoring in Biology. During the spring and summer of 2014, I had the opportunity to participate in a co-op and internship program called the Disney College Program. My worksite was located on the grounds of the Walt Disney World Company in Orlando, Florida. The program was geared toward college students who want to get hands on experience in the real world. In addition to my financial compensation, I lived in an apartment on-site, was provided free transportation and given free access to all of the Disney theme parks. During the five-month program I acquired many skills. I organized group meetings, trained new employees and sampled products. My ultimate gain from this opportunity was an enhancement of my leadership skills. As a result of this program, I am an alumni of the Disney College Program, which will afford me solid networking opportunities to gain employment upon graduation.

This opportunity would not have been possible without the help of the STEM Scholars Academy administrators. Dr. Mary Benjamin learned of my opportunity and covered the cost of my registration fees for the program. The STEM Scholars Academy helped me to stay current with my biology curriculum while still participating in the co-op. Had it not been for the STEM program, I would not have been prepared for this opportunity. I greatly appreciate the help, guidance and encouragement of the STEM Scholars Academy that pushed me to take advantage of opportunities such as the Disney College Program.
The National Society of Black Engineers (NSBE) 40th Annual Convention in Indianapolis, IN

Dr. Charles Colen, Co-Principal Investigator, Mr. O.C. Duffy of Industrial Technology Management and Applied Engineering and Ms. Tracy Knowlton of Career Services along with 28 STEM students who are members of the University of Arkansas at Pine Bluff Student Chapter of the National Society of Black Engineers (NSBE) attended the 40th Annual National Society of Black Engineers Convention in Nashville, TN on March 27-30, 2014. The convention included workshops, NSBE forums, technical presentations, corporate and university forums for faculty and students. The participants obtained valuable professional development from workshops covering: leadership, management, communication, manufacturing, and information technology. This was also a great opportunity for the faculty and students to network with their peers with over 200 representatives from corporate and government agencies. The benefits from this conference included better prepared faculty for classroom instruction and relations with industry. The students are now more aware of the ultimate goal of receiving a STEM education, applying the knowledge obtained to the workforce and becoming productive graduates from the University of Arkansas at Pine Bluff for entry into society. Upon conclusion of the conference 90% of the students had received job offers, interviews and/or further contact requests, including a plant visit.

Emerging Researchers National (ERN) Conference in STEM in Washington, D.C.

Dr. Mary E. Benjamin, Principal Investigator, Dr. Anissa E. Buckner and Dr. Antonie Rice, along with fifteen students from UAPB, attended the 2014 Emerging Researchers National Conference in Washington, D.C., February 20-22, 2014. Twelve of the students received travel awards to attend and present oral or poster presentations. Mr. Jarren Oates won second place in Microbiology and Immunology. Dr. Richard and Dr. Anissa Buckner served as judges and Dr. Buckner also served on the ERN Advisory Board. The ERN conference is hosted by the American Association for the Advancement of Science (AAAS), the National Science Foundation (NSF) Division of Human Resource Development (HRD), within the Directorate for Education and Human Resources (EHR). The objectives of the conference are to help undergraduate and graduate students enhance their science communication skills and to better understand how to prepare for science careers in a global workforce.
Kristen Sterba, Ph.D.
Associate Dean, Office of Graduate Student Recruiting and Retention, Graduate School, UAMS

Dr. Sterba came to UAPB to speak to the STEM Scholars during the Fall 2014 Guest Lecture Series. She has been recruiting graduate students to UAMS since 2003. She is also responsible for coordinating various Graduate School events and is Co-Director of the Scientific Communications and Ethics course for first year basic science students. In her role as Assistant Director of the new NIH funded UAMS Initiative for Maximizing Student Diversity program, Dr. Sterba aims to increase the number of underrepresented minority students receiving doctoral degrees in the biomedical sciences.

Dr. Nicquet Blake, Ph.D
Associate Dean for Graduate Admissions and Recruitment
University of Texas Health Science Center San Antonio

Dr. Nicquet Blake came to UAPB to speak to the STEM Scholars during the Fall 2014 Guest Lecture Series. She is the Associate Dean for Graduate Admissions and Recruitment at the University of Texas Health Science Center San Antonio. In this role, she oversees admission for the Graduate School of Biological Science and has also developed and implemented comprehensive strategies for improving the recruitment, retention, and graduation rates of underrepresented minority (URM) students in the Ph.D programs at UTHSCSA. Since the implementation of these strategies, URM student matriculation has increased from 12% to 30% at the Health Science Center, retention and graduation has shown similar trends. Dr. Blake is currently the principal investigator for an Initiative for Maximizing Student Development grant and is co-director on the South Texas Doctoral Bridge Program, a partnership established with Texas State University San Marcos. She also serves on both the DDS/Ph.D and M.D./Ph.D Admissions Committee.

Dr. Debra D. Murray, Ph.D
Director of Education and Minority Diversity Programs in the Human Genome Sequencing Center (HGSC)
Baylor College of Medicine (BCM)

Debra D. Murray, came to UAPB to speak to the STEM Scholars during the Fall 2014 Guest Lecture Series. She is the Director of Education and Minority Diversity Programs in the Human Genome Sequencing Center (HGSC) at Baylor College of Medicine (BCM). Dr. Murray also holds a faculty appointment (Instructor) in the Molecular and Human Genetics Department at BCM.

Dr. Murray earned a bachelor’s degree in Biology from the University of Texas at Austin, and a master’s degree in Environmental Toxicology from Prairie View A&M University. In 1997, she received her doctoral degree in Cell and Molecular Biology from Purdue University in West Lafayette, IN where she studied cytokinesis in sea urchin eggs. Upon receipt of the doctorate, she accepted a postdoctoral fellowship at Baylor College of Medicine where she studied mitosis in Aspergillus. She then accepted a position at the Dallas VA Medical Center as a Research Scientist and was an adjunct professor at the University of Texas Southwestern Medical School in Dallas, TX where she studied pulmonary edema in human endothelial cells. She was selected as a Burroughs Wellcome Visiting Professor in 1999. Her current research focus is understanding research interventions to determine components essential for the success of future scientist.

Dr. Murray completed the Institute of Managerial Leadership at the Red McComb School of Business at the University of Texas at Austin in 2000. She recently completed the BCM Educational Scholars Fellowship Program to increase her knowledge in educational research methodologies. Currently, Dr. Murray developed and implemented a program in the Human Genome Sequencing Center whose goal is to increase the number of underrepresented minorities in the genomic sciences. She works with undergraduate and post-baccalaureate students to provide biomedical research training to expose them to the exciting career opportunities available in the cutting-edge high tech driven future of genomics. Since 2003, six alumni have received Ph.D’s with fifteen currently in doctoral programs.
The University of Arkansas at Pine Bluff has conferred a total of 878 degrees to STEM majors from academic year 2003-2004 to academic year 2013-2014. The first cohort of STEM Scholars enrolled at the University of Arkansas at Pine Bluff in the Fall of 2004. At the end of the 2003-2004 academic year, the university had conferred 55 STEM undergraduate degrees. In the 2013-2014 academic year a total of 124 degrees were conferred to STEM students.

**Undergraduate Degrees Conferred in STEM Disciplines by Academic Year**

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Science</td>
<td>19</td>
<td>23</td>
<td>30</td>
<td>24</td>
<td>19</td>
<td>27</td>
<td>13</td>
<td>14</td>
<td>30</td>
<td>24</td>
<td>26.3%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>5</td>
<td>10</td>
<td>6</td>
<td>4</td>
<td>100.0%</td>
</tr>
<tr>
<td>Computer Science</td>
<td>12</td>
<td>10</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>8</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>10</td>
<td>-16.7%</td>
</tr>
<tr>
<td>Industrial Technology management and Applied Engineering</td>
<td>12</td>
<td>26</td>
<td>17</td>
<td>22</td>
<td>21</td>
<td>15</td>
<td>28</td>
<td>30</td>
<td>26</td>
<td>39</td>
<td>225.0%</td>
</tr>
<tr>
<td>Biology</td>
<td>29</td>
<td>17</td>
<td>24</td>
<td>25</td>
<td>22</td>
<td>19</td>
<td>17</td>
<td>32</td>
<td>32</td>
<td>45</td>
<td>55.2%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>-50.0%</td>
</tr>
<tr>
<td>Physics</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>Total - STEM</strong></td>
<td>76</td>
<td>82</td>
<td>79</td>
<td>82</td>
<td>72</td>
<td>79</td>
<td>75</td>
<td>102</td>
<td>107</td>
<td>124</td>
<td>63.2%</td>
</tr>
<tr>
<td><strong>Percent Change</strong></td>
<td>- -</td>
<td>7.9%</td>
<td>-3.7%</td>
<td>3.8%</td>
<td>-12.2%</td>
<td>9.7%</td>
<td>-5.1%</td>
<td>36.0%</td>
<td>4.9%</td>
<td>15.9%</td>
<td></td>
</tr>
<tr>
<td><strong>Total - UAPB (UG)</strong></td>
<td>420</td>
<td>372</td>
<td>376</td>
<td>365</td>
<td>401</td>
<td>375</td>
<td>382</td>
<td>461</td>
<td>394</td>
<td>429</td>
<td>2.1%</td>
</tr>
<tr>
<td><strong>% STEM/Total UAPB UG</strong></td>
<td>18.1%</td>
<td>22.0%</td>
<td>21.0%</td>
<td>22.5%</td>
<td>18.0%</td>
<td>21.1%</td>
<td>19.6%</td>
<td>22.1%</td>
<td>27.2%</td>
<td>28.9%</td>
<td></td>
</tr>
</tbody>
</table>

**Graduate Degrees Conferred in STEM Disciplines by Academic Year**

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</tr>
</thead>
<tbody>
<tr>
<td>Mathematics Education</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>100.0%</td>
</tr>
<tr>
<td>Science Education</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>200.0%</td>
</tr>
<tr>
<td>Computer Science &amp; Technology</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Total - STEM</strong></td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>11</td>
<td>1000.0%</td>
</tr>
<tr>
<td><strong>Total - UAPB (GR)</strong></td>
<td>29</td>
<td>27</td>
<td>31</td>
<td>22</td>
<td>24</td>
<td>34</td>
<td>21</td>
<td>37</td>
<td>35</td>
<td>26</td>
<td>-10.3%</td>
</tr>
<tr>
<td><strong>% STEM/Total UAPB</strong></td>
<td>3.4%</td>
<td>7.4%</td>
<td>3.2%</td>
<td>9.1%</td>
<td>0.0%</td>
<td>2.9%</td>
<td>9.5%</td>
<td>5.4%</td>
<td>2.9%</td>
<td>42.3%</td>
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</tr>
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2013-2014 STEM Graduates

<table>
<thead>
<tr>
<th>Name</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jerrica Abram</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Grace Galloway</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Daren Hamlet</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Cameron Lee</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Robert Maddox</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Obumneme Nwankwo</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Jarvis Randle</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Alanna Whitaker</td>
<td>Biology</td>
</tr>
<tr>
<td>Dominique Washington</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Jasmine Rice</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Delois Moss</td>
<td>Biology</td>
</tr>
<tr>
<td>Odell Wells</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Chasity White</td>
<td>Biology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keishauna Hayes</td>
<td>Biology</td>
</tr>
<tr>
<td>Ariel Hines</td>
<td>Biology</td>
</tr>
<tr>
<td>Kelin Key</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Alyceen Jones</td>
<td>Biology</td>
</tr>
<tr>
<td>Ka’Wanta Marshall</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>T’Quoneene Mims</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Jammin Montgomery</td>
<td>Biology</td>
</tr>
<tr>
<td>Delois Moss</td>
<td>Biology</td>
</tr>
<tr>
<td>Jarren Oates</td>
<td>Biology</td>
</tr>
<tr>
<td>Kindra Porter</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Jasmon Montgomery</td>
<td>Biology</td>
</tr>
<tr>
<td>William Sanders</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Joshua Strong</td>
<td>Computer Science</td>
</tr>
<tr>
<td>Kerian Trice</td>
<td>Biology</td>
</tr>
<tr>
<td>Paige Walker</td>
<td>Biology</td>
</tr>
<tr>
<td>Odell Wells</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Chasity White</td>
<td>Biology</td>
</tr>
<tr>
<td>Nicolas Young</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angelle Anderson</td>
<td>Biology</td>
</tr>
<tr>
<td>Delois Moss</td>
<td>Biology</td>
</tr>
<tr>
<td>Ka’Wanta Marshall</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Obumneme Nwankwo</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Jarren Oates</td>
<td>Biology</td>
</tr>
<tr>
<td>Kindra Porter</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Jasmine Rice</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Fele’Cia Cummings</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Virginia Foster</td>
<td>Science Education-Biology</td>
</tr>
</tbody>
</table>

2013-2014 STEM Graduates (Con’t)

<table>
<thead>
<tr>
<th>Name</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martastus Alford</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Angelle Anderson</td>
<td>Biology</td>
</tr>
<tr>
<td>Jessica Bailey</td>
<td>Biology</td>
</tr>
<tr>
<td>Kendra Cole</td>
<td>Biology</td>
</tr>
<tr>
<td>Felo’Cia Cummings</td>
<td>Industrial Technology Management and Applied Engineering</td>
</tr>
<tr>
<td>Virginia Foster</td>
<td>Science Education-Biology</td>
</tr>
</tbody>
</table>
Through a grant from the U.S. Department of Education HBCU Master’s Degree in STEM Area Enrichment, the STEM Academy offers, in collaboration with the School of Education, enriched Master’s degrees in Science and in Mathematics Education. The grant includes assistantships, funds to develop a new masters degree in Computer Science and Technology and $1.5M for construction of the STEM Academy and Conference Center.

Graduate Science Enrichment Program. **Graduate Assistants** (full time or part time)

Persons with bachelor degrees from regionally accredited colleges and universities in mathematics, science, and computer science or technology can apply for the graduate assistant positions.

Graduate assistants (GAs) will be teaching assistants (seeking licensure) or research assistants (licensed) to perform extensive academic research in the field of mathematics or science as assigned by a professor or principal investigator of a research project. GAs will assist with grant applications, correspondences, research, and research writing. Additionally, they will assist professors with instructional responsibilities that will consist of developing technological products and handouts, tutoring, conducting research, assisting with formal presentation, and assisting in laboratories and other mathematics/science related activities.

**Qualifications**

1. Bachelor’s degree in mathematics or mathematics education, science or science education, business technology education, or computer science (computer information systems or technology) or bachelor’s degree with 30 hours more in a one of the above listed licensure areas (Courses must have the appropriate prefix to support that area).
2. Passing scores on all parts of Praxis I
3. Completed application (that includes a one-page narrative highlighting the applicant’s professional experiences in science, technology, engineering and/or mathematics. Also, this narrative should discuss the applicant’s commitment to teaching in a secondary education public school in the area of mathematics, science or a computer science related area).
4. Resume’
5. Official transcript
6. Undergraduate grade point average of 3.0 cumulative or 3.0 in the major
7. Interview by admission committee
8. Entering student (that is, one who has not previously begun a degree in a graduate mathematics- or science-related area).

*Students may apply for full-time or part-time assistantships.*
My success is a direct result of attending my Alma Mater, the University of Arkansas at Pine Bluff (UAPB). UAPB instilled many values in me; namely the importance of knowing one’s self. Prior to matriculating at Howard University, I understood empathetic leadership to be my biggest strength. Since arriving in Washington D.C., I realize that my future success will continue to be dependent on my ability to persevere, strive, further develop my strengths and overcome any areas that may come less natural to me. At UAPB, I learned that my purpose was to create new spaces in the fields of biomedical research and health care. At Howard University, I have learned what it will take to achieve my goals, and some of the trials proceeding new territories of discovery. As a STEM Academy Scholar at UAPB, I learned the implications of targeted research and the role that internships play in social and professional growth. The STEM Academy effectively transferred to its students a global perspective in the hopes of accelerating positive impact across all STEM fields. In addition, Mr. Al Ashley, and his guidance as a STEM Academy partner, enabled me to diversify my education in summer programs at Harvard University and The John Hopkins University to name a few. The programs gave me the confidence to engage with fellow scholars of varying beliefs and talents with the goal of serving others always at the center of discussion. After graduating from UAPB as the first double major receiving Bachelors of Science degrees in Chemistry and Physics, I continued my education at the University of Arkansas for Medical Sciences (UAMS), earning a Masters of Public Health. While a student at UAMS, I was able to give back to my undergrad institution by becoming the first graduate research assistant for the Minority Research Center on Tobacco & Addictions. My undergraduate research, in tandem with my masters studies motivated me to enroll in Howard University’s College of Medicine and pursue both a medical degree and a PhD in Anatomy with an emphasis in Cell Development. UAPB helped to influence the student I am today and the change agent I am continuing to nurture.
Funding Partners

The UAPB STEM Academy expresses deep appreciation to all who contribute to its successful outcomes. Special appreciation is extended to our funding agencies:

- The National Science Foundation
- The U.S. Department of Education
- The Arkansas Science and Technology Authority
- The University of Arkansas at Pine Bluff
- The Arkansas Legislative Assembly
- The Honorable Governor Mike Beebe
- The Honorable Senator Linda Chesterfield
- The Honorable Representative Charles Armstrong
- Title III Program (funded through the U.S. Department of Education, Office of Post Secondary Education, Institutional Services)
- The Taxpayers of Arkansas
- St. Paul Missionary Baptist Church
- Dr. Carolyn Blakely

All donors are deeply appreciated.

- Mary E. Benjamin, Principal Investigator

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- Dr. Edmund Buckner, Associate Dean, Research and Extension
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  Dale Bumpers National Rice Research Center
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  National Center for Toxicological Research
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  No Child Left Behind, Arkansas Department of Education
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  Stanford University

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Pine Bluff, Arkansas 71601
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