

## **Academic Program Proposals for July 28, 2023**

The following is a list of academic program proposals being reviewed for possible consideration for approval at the July 28, 2023, Arkansas Higher Education Coordinating Board meeting. The summary contents are subject to change. The finalized version of the summaries will be available in the board book.

The institution's name, program title, and program summary are listed below. Contact ADHE for a copy of the proposals.

If you have concerns, objections, questions, or comments concerning a specific proposal, please send them to **Mason Campbell, Assistant Director of Academic Affairs** (mason.campbell@adhe.edu) at ADHE no later than June 16, 2023.

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### **ARKANSAS STATE UNIVERSITY JONESBORO (ASUJ) COLLEGE OF VETERINARY MEDICINE AND DOCTOR OF VETERINARY MEDICINE**

The administration of Arkansas State University Jonesboro (ASUJ) and Board of Trustees of the Arkansas State University System request approval to establish the College of Veterinary Medicine and to offer the Doctor of Veterinary Medicine effective Fall 2025. ASUJ is accredited by the Higher Learning Commission and the proposed administrative unit and program is within the role and scope established for the institution. The ASU System Board of Trustees approved the administrative unit and program on March 10, 2023.

ADHE received two separate proposals for Veterinary Medicine, one for the doctorate program and one for the creation of the college. ADHE staff combined the two proposals based on their contingency to one another.

#### **Program Description**

The proposed 153 credit-hour Doctor of Veterinary Medicine program will prepare students to prevent, control, diagnose, and treat diseases affecting the health of domestic and wild animals. In addition, this program will enable students to engage in the prevention of transmission of non-human animal diseases to humans and ensure a safe food supply by monitoring and maintaining the health of food-producing animals.

The Doctor of Veterinary Medicine program will be housed in the proposed College of Veterinary Medicine. This new administrative unit will consist of 40 new faculty and staff dedicated to the DVM program. The university will utilize existing facilities, including classrooms, laboratories, and A-State farm facilities to meet the needs of the Doctor of Veterinary Medicine faculty and students. Startup operating expenses and facility renovations and updates will be funded by a combination of philanthropy, bonds, and internal funds.

The program's enrollment is projected to be 120 students in each cohort, with 50% Arkansas residents and 50% non-residents, and retain 98% of those students each year.

### **Program Need**

The veterinary medicine profession is currently facing a workforce crisis that includes historic shortages in veterinarians, veterinary nurses/technicians, and veterinary specialists. Implications for this shortage extend beyond the wellbeing of the veterinary workforce but include potential widespread negative impacts on animal welfare, public health, business, and the economy. One key recommendation to address this issue is to increase the number of veterinary college graduates.

In the Fall of 2021, 42 Arkansas residents were enrolled as first-year students in out-of-state veterinary medical colleges/schools across the United States. The Arkansas Health Grant Program (ARHEG) provides financial assistance to students seeking professional training in many areas, including veterinary medicine, to allow them to attend out-of-state institutions. The ARHEG program spends over \$1,000,000 each year for veterinary medical education and has only 36 total slots, with only 9 new slots each year. Therefore, 33 of the 42 Arkansas students face the higher cost of nonresident tuition and likelihood of substantial student education loans.

### **Program Cost**

The proposed College of Veterinary Medicine and Doctor of Veterinary Medicine program will be led by one Dean, four Associate Deans, two Department Chairs, 30 Faculty members, and three veterinary technicians. Upon startup, only four administrators will be required, and faculty will be hired a semester before they are needed. This ramp-up hiring approach will spread out the start-up cost until the program is fully offered.

Overall program costs for the first three years are estimated at year one: \$7,114,296, year two: \$8,182,296, and year three: \$11,198,296. Each year's cohort is expected to have 120 students, and the college will implement block tuition for this program. Regardless of credit hour load, Arkansas residents will be charged \$17,000 per semester while out-of-state students will be charged \$27,000 per semester. Overall revenue for the first three years is projected at \$5,280,000 for year one, \$10,472,000 for year two, and \$15,576,000 for year three.

Prior to year one of operations, an anticipated bond issuance, in the amount of \$15,000,000, will be used in support of a new building and associated furniture, fixtures, and equipment. Years one through three bond operational expense is projected at approximately \$1,700,000 annually. Year one of operations will require approximately \$1,840,000 of institutional reserves to cover expenses in excess of revenue (operational expense). While philanthropic giving is anticipated to defer the cost of the new building, ASUJ has budgeted \$0.00 philanthropic funds for the first three years of operation.

## Program Duplication

The College of Veterinary Medicine and the Doctor of Veterinary Medicine program would be the first of their kind in the state of Arkansas.

## Program Goals/Objectives

1. The student will exhibit competency in comprehensive patient diagnosis (problem solving skills), appropriate use of clinical laboratory testing, and record management.
2. The student will exhibit competency in providing comprehensive treatment planning including patient referral.
3. The student will exhibit competency in anesthesia and pain management, and patient welfare.
4. The student will exhibit competency in basic surgery skills, experience, and case management.
5. The student will exhibit competency in basic medicine skills, experience and case management.
6. The student will exhibit competency in emergency and intensive care case management.
7. The student will exhibit competency in health promotion, disease prevention/biosecurity, zoonosis, and food safety.
8. The student will exhibit competency in client communications and ethical conduct.
9. The student will exhibit competency in critical analysis of new information and research findings relevant to veterinary medicine.

## Program Enrollment and Graduation Projections

| Academic Year | Projected Enrollment | Projected Graduates |
|---------------|----------------------|---------------------|
| 2025 - 2026   | 120                  |                     |
| 2026 - 2027   | 238                  |                     |
| 2027 - 2028   | 356                  |                     |
| 2028 - 2029   |                      | 118                 |
| 2029 - 2030   |                      | 118                 |

## Program Requirements

|                  |  |
|------------------|--|
| <i>DRVM 711V</i> | <i>Academic Resilience</i>                     |
| <i>DRVM 7115</i> | <i>Anatomy I</i>                               |
| <i>DRVM 712V</i> | <i>Physiology I</i>                            |
| <i>DRVM 7121</i> | <i>Veterinary Histology</i>                    |
| <i>DRVM 7123</i> | <i>Parasitology</i>                            |
| <i>DRVM 7131</i> | <i>Veterinary Foundations I</i>                |
| <i>DRVM 7141</i> | <i>Clinical Skills I</i>                       |
| <i>DRVM 715V</i> | <i>Research Methods in Veterinary Medicine</i> |

|           |   |
|-----------|---|
| DRVM 7161 | <i>Anatomy &amp; Physiology Applied</i>                   |
| DRVM 7132 | <i>Professional Life Skills I</i>                         |
| DRVM 7151 | <i>Medical Science</i>                                    |
| DRVM 716V | <i>Veterinary Immunology</i>                              |
| DRVM 717V | <i>Veterinary Virology</i>                                |
| DRVM 714V | <i>Bacteriology &amp; Mycology</i>                        |
| DRVM 7171 | <i>Clinical Skills II</i>                                 |
| DRVM 7162 | <i>Animal Husbandry &amp; Welfare</i>                     |
| DRVM 7181 | <i>Basic Veterinary Pharmacology</i>                      |
| DRVM 7214 | <i>Anatomy II</i>   |
| DRVM 7213 | <i>Veterinary Pathology I</i>                             |
| DRVM 721V | <i>Toxicology</i>   |
| DRVM 7223 | <i>Clinical Pathology</i>                                 |
| DRVM 7233 | <i>Veterinary Foundations II</i>                          |
| DRVM 724V | <i>Clinical Skills III</i>                                |
| DRVM 7222 | <i>Veterinary Nutrition</i>                               |
| DRVM 7242 | <i>Surgery I</i>  |
| DRVM 726V | <i>Surgery II</i>   |
| DRVM 725V | <i>Small Animal Orthopedic Surgery III</i>                |
| DRVM 7232 | <i>Professional Life Skills II</i>                        |
| DRVM 7243 | <i>General Pathology II</i>                               |
| DRVM 7253 | <i>Diagnostic Imaging</i>                                 |
| DRVM 727V | <i>Clinical Skills IV</i>                                 |
| DRVM 7252 | <i>Anesthesia &amp; Analgesia I</i>                       |
| DRVM 7251 | <i>Integrated Diagnostics</i>                             |
| DRVM 7382 | <i>Veterinary Pharmacology I</i>                          |
| DRVM 7392 | <i>Veterinary Pharmacology II</i>                         |
| DRVM 7314 | <i>Small Animal Medicine I</i>                            |
| DRVM 7324 | <i>Small Animal Medicine II</i>                           |
| DRVM 7322 | <i>Theriogenology</i>                                     |
| DRVM 7333 | <i>Food Animal Production &amp; Health Maintenance I</i>  |
| DRVM 7343 | <i>Food Animal Production &amp; Health Maintenance II</i> |
| DRVM 7353 | <i>Equine Medicine &amp; Surgery I</i>                    |
| DRVM 7363 | <i>Equine Medicine &amp; Surgery I</i>                    |
| DRVM 7342 | <i>Clinical Skills V</i>                                  |
| DRVM 7332 | <i>Professional Life Skills III</i>                       |
| DRVM 735V | <i>Introduction to Clinical Year</i>                      |
| DRVM 7351 | <i>Avian &amp; Exotic Animal Medicine</i>                 |
| DRVM 7372 | <i>Clinical Skills VI</i>                                 |
| DRVM 7391 | <i>Practice Management</i>                                |
| DRVM 7381 | <i>Radiology Interpretation</i>                           |
| DRVM 7418 | <i>CR-Small Animal General Practice</i>                   |
| DRVM 7424 | <i>CR-Specialty Practice</i>                              |
| DRVM 7434 | <i>CR-Small Animal Shelter Practice</i>                   |
| DRVM 7412 | <i>CR-Diagnostic Veterinary Medicine</i>                  |
| DRVM 7442 | <i>CR-Large Animal</i>                                    |

|                  |                                    |
|------------------|------------------------------------|
| <i>DRVM 7422</i> | <i>Clinical Diagnostic Imaging</i> |
| <i>DRVM 745V</i> | <i>CRE-Elective Externship</i>     |
| <i>DRVM 7433</i> | <i>NAVLE Administration</i>        |
| <i>DRVM 7451</i> | <i>Assessment of Clinical Year</i> |

*Italics = New Courses*

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## **NORTHWEST ARKANSAS COMMUNITY COLLEGE (NWACC) CERTIFICATE OF PROFICIENCY AND TECHNICAL CERTIFICATE IN BIOTECHNOLOGY**

The administration and Board of Trustees of Northwest Arkansas Community College (NWACC) request approval to offer the Certificate of Proficiency in Pre-Biotech: Molecular and Cellular Biology and Technical Certificate in Biotechnology, effective Fall 2024. NWACC is accredited by the Higher Learning Commission and the proposed program is within the role and scope established for the institution. The Northwest Arkansas Community College Board of Trustees approved the program on February 13, 2023.

ADHE received two separate proposals for Biotechnology, one for the Certificate of Proficiency and one for the Technical Certificate. ADHE staff combined the two proposals based on their stackable curriculum.

### **Program Description**

The proposed Certificate of Proficiency in Pre-Biotech: Molecular and Cellular Biology and Technical Certificate in Biotechnology will provide students with instruction in a study of technology based on biology and chemistry especially pertinent to agriculture, food science, medicine, and forensics. Students will gain knowledge in a combination of areas such as genetics, cell biology, molecular biology, biochemistry, and microbiology.

The 20 credit-hour Certificate of Proficiency in Pre-Biotech: Molecular and Cellular Biology and 31 credit-hour Technical Certificate in Biotechnology offers hands on experience with biotechnology equipment, processes, and techniques to create a needed skilled workforce. Students wishing to continue their education can move seamlessly into the already approved Associate of Applied Science in General Technology offered at Northwest Arkansas Community College.

These proposed programs will rely on existing infrastructure. No new faculty will be required given that current faculty already have experience in the biotechnology area, with additional training offered to further their knowledge. Additionally, new equipment needed for instruction will be funded by grants received by the College.

### **Program Need**

Biotechnology is a booming career option with its demand emerging in sectors such as pharmaceutical, animal husbandry, agriculture, healthcare, medicine, genetic engineering, etc. In 2021, there were 76,150 biotechnician positions with a mean salary

of \$51,770. Arkansas was in the top quartile of the annual mean wage for biological technicians.

Demand for biological technician positions has increased 6% and is expected to continually increase until 2030. Local employers, such as Tyson and Pel-Freez, were interviewed, and all stated an interest and need for individuals with certificate and/or associate-level training. These same employers stated their willingness to pay between \$15-\$35 per hour.

### **Program Cost**

The Certificate of Proficiency in Pre-Biotech: Molecular and Cellular Biology and Technical Certificate in Biotechnology program is designed to use pre-existing faculty and facilities. NWACC will use NSF and Perkins grant funds to purchase new equipment to support the program's hands-on instruction. In addition, approximately \$1,000 will be spent on micro certifications for faculty through the Bioscience Core Skills Institute.

### **Program Duplication**

No active, associate-level or below Biotechnology programs exist in Arkansas. The University of Arkansas Little Rock offers a Molecular Biotechnology concentration in the Bachelor of Science in Biology and Arkansas State University Jonesboro has a Bachelor of Science in Biotechnology.

### **Program Goals/Objectives**

Upon completion students will be able to:

1. Apply hands on knowledge of genetics, cell biology, tissue culture, chemical identification, and isolation for biotechnology disciplines.
2. Use techniques, skills, and modern scientific and technical tools necessary for professional practice.
3. Identify and solve discipline related problems.
4. Understand professional and ethical responsibility in biotechnology disciplines.
5. Design and conduct experiments/ investigations, as well as to analyze and interpret data in the laboratory.
6. Communicate effectively in a professional environment.
7. Demonstrate knowledge of the contemporary and ethical issues surrounding the biotechnology disciplines.
8. Recognize the need for and an ability to engage in professional development in pursuit of life-long learning.
9. Understand the impact of biotechnology disciplines for solutions in a global and societal context.

## Program Enrollment and Graduation Projections

| Academic Year | Projected Enrollment | Projected Graduates |
|---------------|----------------------|---------------------|
| 2024 - 2025   | 10                   |                     |
| 2025 - 2026   | 12                   |                     |
| 2026 - 2027   | 14                   | 6                   |
| 2027 - 2028   |                      | 8                   |
| 2028 - 2029   |                      | 10                  |

## Program Requirements

### Certificate of Proficiency in Pre-Biotech: Molecular and Cellular Biology

BIOL 2534 Cell Biology  
 BIOL 2324 Genetics  
 CHEM 1074 Fundamentals of Chemistry OR  
 CHEM 1104 College Chemistry I  
 CHEM 2614 Organic Physiological Chemistry

#### Choose 1 course from below:

BIOL 1103 Introduction to Biotechnology  
 BIOL 1544 Principles of Biology  
 BIOL 1604 General Zoology  
 BOTY 1614 Plant Biology  
 BOTY 1614H Plant Biology, Honors  
 CHEM 1124 College Chemistry II  
 MBIO 2014 General Microbiology

### Technical Certificate in Biotechnology

BIOL 2534 Cell Biology OR  
 BIOL 2324 Genetics  
 CHEM 1074 Fundamentals of Chemistry OR  
 CHEM 1104 College Chemistry I  
 CHEM 2614 Organic Physiological Chemistry  
 BIOL 1103 Introduction to Biotechnology  
 BIOL 2104 Biotechnology I  
 BIOL 2204 Biotechnology II

#### Complete 8 hours from the following:

BIOL 2534 Cell Biology  
 BIOL 2324 Genetics  
 CMJS 2013 Intro to Criminal Justice  
 CMJS 2093 Forensic Anthropology  
 CMJS 2343 Crime Scene Investigation  
 CHEM 1124 College Chemistry II  
 MBIO 2014 General Microbiology  
 AFLS 2921 Agricultural Undergraduate Research I  
 AFLS 2931 Agricultural Undergraduate Research II  
 ENSC 2921 Undergraduate Research I  
 ENSC 2931 Undergraduate Research II

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## **SOUTHEAST ARKANSAS COLLEGE (SEARK) CERTIFICATE OF PROFICIENCY AND TECHNICAL CERTIFICATE IN MEDICAL ASSISTANT TECHNOLOGY**

The administration and Board of Trustees of Southeast Arkansas College (SEARK) request approval to offer the Certificate of Proficiency in Administrative Medical Assistant and Technical Certificate in Medical Assistant Technology, effective Fall 2023. SEARK is accredited by the Higher Learning Commission and the proposed program is within the role and scope established for the institution. The Southeast Arkansas College Board of Trustees approved the program on May 10, 2023.

ADHE received a combined proposal for the Medical Assistant Technology program detailing two separate credentials, the Certificate of Proficiency in Administrative Medical Assistant, and the Technical Certificate in Clinical Medical Assistant.

### **Program Description**

The proposed Medical Assistant Technology program will prepare students to work in a hospital and outpatient clinic settings. The program will offer credentials in either Administrative or Clinical assistance.

The 19 credit-hour Certificate of Proficiency in Administrative Medical Assistant will provide training in communication and patient relations, medical law and ethics, scheduling, medical record and privacy practices, and general clinic office practices including basic medical coding and insurance billing. In addition, the 30 credit-hour Technical Certificate in Clinical Medical Assistant offers students a broad foundation in basic medical assisting skills, including classroom, skills lab, and practicum hours, in a medical setting under the supervision of a physician or other clinic personnel.

By utilizing existing coursework and facilities, no new faculty will be required for this program. Only three new courses of the CP and four new courses of the TC will be required.

### **Program Need**

Employment of medical assistants is projected to grow 16% from 2021 to 2031, much faster than the average for all occupants. On average, approximately 123,000 job openings for medical assistants are projected each year. Many of these openings result from the need to replace workers who transfer to different occupations or retire. Given that the large baby-boom population continues to age, their healthcare needs will result in a need for more medical assistants to perform routine administrative and clinical duties in physicians' offices and other primary care settings.

Jefferson Regional Medical Center, one of the largest employers in Pine Bluff, AR, contacted SEARK requesting the offering of a Medical Assistant Technology program.



Several letters of support from local physicians and medical hiring staff were written to express their need and/or backing of the proposed program.

### **Program Cost**

The proposed Medical Assistant Technology program is designed to use pre-existing faculty, facilities, and resources. One adjunct faculty member will be hired. All startup costs will be funded by Southeast Arkansas College.

### **Program Duplication**

Medical Assistant Technology is offered at five colleges or universities in Arkansas. These institutions and their distance from Pine Bluff are Arkansas State University Mid-South (137 miles), Arkansas Tech University (118 miles), Cossatot Community College of the University of Arkansas (161 miles), East Arkansas Community College (100 miles), and University of Arkansas Pulaski Technical College (45 miles).

### **Program Goals/Objectives**

Upon completion students will be able to:

1. Demonstrate skills for assisting healthcare providers in an outpatient clinical setting giving direct patient care assistance.
2. Demonstrate competence in preparing patients for tests, procedures and examinations and performing vital sign documentation common to the outpatient clinic setting. Students will also perform CLIA-waived laboratory procedures and simple office procedures within the scope of the CMA role.
3. Exhibit patient safety in the clinic setting, using universal, standard precautions to prevent disease transmission, recognize and respond to emergencies, and administer select medications under the direction of the physician or nurse.
4. Use correct medical terminology to communicate and document care, manage patient records, obtain patient history and insurance data using electronic health record technology and will demonstrate competency in basic diagnostic and procedural coding.
5. Exhibit lawful and ethical care; assuring patient rights, maintenance of safety in the healthcare environment, following chain of custody procedures and reporting illegal or unsafe practices to proper authorities.

### **Program Enrollment and Graduation Projections**

Certificate of Proficiency in Administrative Medical Assistant

| <b>Academic Year</b> | <b>Projected Enrollment</b> | <b>Projected Graduates</b> |
|----------------------|-----------------------------|----------------------------|
| 2024 - 2025          | 10                          |                            |
| 2025 - 2026          | 12                          |                            |
| 2026 - 2027          | 15                          | 12                         |
| 2027 - 2028          |                             | 12                         |
| 2028 - 2029          |                             | 12                         |

## Technical Certificate in Clinical Medical Assistant

| Academic Year | Projected Enrollment | Projected Graduates |
|---------------|----------------------|---------------------|
| 2024 - 2025   | 8                    |                     |
| 2025 - 2026   | 10                   |                     |
| 2026 - 2027   | 12                   | 10                  |
| 2027 - 2028   |                      | 10                  |
| 2028 - 2029   |                      | 10                  |

### Program Requirements

#### Certificate of Proficiency in Administrative Medical Assistant

|                  |   |
|------------------|---|
| MATH 1233        | Technical Mathematics                       |
| COMP 1123        | Introduction to Computers                   |
| <i>MEDI 1013</i> | <i>Medical Office Management</i>            |
| <i>MEDI 1225</i> | <i>Administrative Medical Assistant</i>     |
| <i>MEDI 2222</i> | <i>Administrative Medical Assistant Lab</i> |
| HEAL 1113        | Medical Terminology OR                      |
| HEAL 1123        | Medical Terminology and Anatomy for Coding  |

#### Technical Certificate in Clinical Medical Assistant

|                  |   |
|------------------|---|
| MATH 1233        | Technical Mathematics                             |
| COMP 1123        | Introduction to Computers                         |
| <i>MEDI 2325</i> | <i>Clinical Medical Assistant</i>                 |
| <i>MEDI 2322</i> | <i>Clinical Medical Assistant Lab</i>             |
| <i>MEDI 1003</i> | <i>Orientation to Clinical Laboratory Science</i> |
| <i>MEDI 1013</i> | <i>Medical Office Management</i>                  |
| HEAL 1113        | Medical Terminology OR                            |
| HEAL 1123        | Medical Terminology and Anatomy for Coding        |
| BIOL 2454        | Human Anatomy & Physiology I                      |
| BIOL 2464        | Human Anatomy & Physiology II                     |

*Italics = New Courses*

## UNIVERSITY OF ARKANSAS PINE BLUFF (UAPB) BACHELOR OF SCIENCE IN CYBERSECURITY

The administration of the University of Arkansas Pine Bluff (UAPB) and Board of Trustees of the University of Arkansas System request approval to offer the Bachelor of Science in Cybersecurity effective Fall 2023. UAPB is accredited by the Higher Learning Commission and the proposed program is within the role and scope established for the institution. The University of Arkansas System Board of Trustees will consider the program for approval on May 24-25, 2023.

### Program Description

The proposed Bachelor of Science in Cybersecurity at the University of Arkansas Pine Bluff will combine knowledge acquired in computer science, mathematics, science,

information technology, and criminal justice to prepare students as cybersecurity professionals ready to detect and prevent cybersecurity attacks. Students successfully completing this program will possess the technical knowledge and hands-on skills necessary for an entry-level career in the high-demand field of Cybersecurity.

Through the UA System Consortium in Cybersecurity, known as CyberLearn, this proposed 120 credit-hour program will offer high-quality, standardized coursework in cybersecurity leading to stackable, transferable undergraduate certificates and degrees that will be valued by Arkansas industry and employers. Graduates of this program could pursue a masters degree in cybersecurity, computer science, law, and other related fields.

Although this consortium-based program is not unique to the state, similar educational opportunities within the cybersecurity field are unique to southeast Arkansas and the state's only public HBCU.

### **Program Need**

Cybersecurity continues to be a high-demand field in Arkansas and the United States. According to Cyberseek.org, the number of current cybersecurity job openings exceeds 750,000 nationwide and more than 7,800 in Arkansas. With demand rising, there is a critical need to establish academic programs able to train potential employees with the necessary skills to close this employment gap.

The *Occupational Outlook Handbook (2022)*, published by the Department of Labor Statistics, projects employment in the Information Security Analysts field to grow 7% from 2020 to 2030 with a median salary of \$69,000 in the state of Arkansas.

### **Program Cost**

Using existing facilities, the proposed Cybersecurity program will be housed in the STEM Research and Conference Center on UAPB's campus. Two doctorate-level and two part-time faculty members will be hired to teach in the program. Funding for one faculty position will be reallocated from the Mathematics and Computer Science Department budget. Administrative support will be provided by a Program Coordinator and Administrative Assistant, both to be hired upon approval. This program will also employ 2 Graduate Teaching Assistants. Funding for this program will come from new student tuition and fees as well as a previously obtained Title III grant.

### **Program Duplication**

Three public, 4-year institutions offer a Bachelor of Science in Cybersecurity. They are Arkansas Tech University, University of Central Arkansas, and University of Arkansas Little Rock. The UA-Little Rock program is the foundation of the CyberLearn consortium.

## Program Goals/Objectives

Upon completion students will be able to:

1. Develop critical thinking and problem-solving skills.
  - a. Change a complex problem, system, or task into small pieces which can be easily understood, implemented, and maintained.
  - b. Produce an algorithmic solution to a problem as a result of problem decomposition and pattern identification.
2. Apply mathematical foundations to the discipline of computer science and cybersecurity.
  - a. Understand the interplay between computational theory and practice.
  - b. Use modern tools of the computing and cybersecurity profession appropriately.
3. Gain a working knowledge of the theoretical foundations of cybersecurity and its application to real-world problems.
  - a. Understand strategies for prevention, detection, and defense of cyber systems.
4. Obtain communication and interpersonal skills necessary to perform effectively in a technical environment.
  - a. Use oral and written communication skills to convey technical information effectively and accurately.
  - b. Employ effectively interpersonal skills to work cooperatively and productively in a team environment with those outside of computing.

## Program Enrollment and Graduation Projections

| Academic Year | Projected Enrollment | Projected Graduates |
|---------------|----------------------|---------------------|
| 2023 - 2024   | 40                   |                     |
| 2024 - 2025   | 75                   |                     |
| 2025 - 2026   | 117                  | 17                  |
| 2026 - 2027   |                      | 32                  |
| 2027 - 2028   |                      | 45                  |

## Program Requirements

### Institutional Requirements

BAS 1210 Personal & Social Development

BAS 1120 Career Life Planning

### General Education Core

ENGL 1311 English Composition 1

ENGL 1321 English Composition 2

MCOM 2390 Oral Communication

MATH 1330 College Algebra

BIOL 1450 Biological Science

PHYS 2310/2110 Gen Physics I/Lab OR Chem/Lab

ART 2340 Art Appreciation OR

|           |                                |
|-----------|--------------------------------|
| MUSI 2330 | Music Appreciation             |
| HUMN 2301 | Humanities                     |
| SOCI 1320 | Introduction to Social Science |
| PSYS 2300 | General Psychology             |
| HIST 2315 | U.S. History OR                |
| PSCI 2312 | American Government            |

Other Requirements

|                |                                |
|----------------|--------------------------------|
| ENGL 2300      | Intro to Literature            |
| HLPE 1110-1125 | Physical Education             |
| HLPE 1310      | Personal Health & Safety       |
| MATH 2311      | Business Calculus I            |
| MATH 2312      | Business Calculus 2            |
| MATH 2370      | Introduction to Statistics     |
| MATH 3390      | Discrete Math                  |
| PHYS 2320/2120 | Gen Physics II/Lab OR Chem/Lab |

Required Courses

|                  |   |
|------------------|---|
| CPSC 2300        | Computer Science I                      |
| CPSC 2301        | Computer Science II                     |
| CPSC 2344        | Local Area Networking                   |
| CPSC 3352        | Algorithmic Lang/Comp                   |
| CPSC 4389        | Operating Systems                       |
| CPSC 4394        | Database Management                     |
| CPSC 2151/2251   | Computer Organization & Programming/Lab |
| CPSC 3210/3102   | Data Structures Lecture & Lab           |
| CRJU 4300        | Cyber Crimes                            |
| <i>CSEC 2300</i> | <i>Intro to Cybersecurity OR</i>        |
| CPSC 3310        | Intro to Information Technology         |
| <i>CSEC 2310</i> | <i>System Security OR</i>               |
| CSIT 3320        | Information Technology Security (IT/II) |
| <i>CSEC 2320</i> | <i>Access Control</i>                   |
| <i>CSEC 3312</i> | <i>Applied Cryptography</i>             |
| <i>CSEC 3314</i> | <i>Incident Response</i>                |
| <i>CSEC 3322</i> | <i>Software Security</i>                |
| <i>CSEC 4290</i> | <i>Cyber Security Capstone</i>          |
| <i>CSEC 4300</i> | <i>Network Forensics OR</i>             |
| CSIT 4310        | Network Forensics (IT/III)              |
| <i>CSEC 4312</i> | <i>Risk Management</i>                  |
| <i>CSEC 4324</i> | <i>Data Security</i>                    |
| <i>CSEC 4344</i> | <i>Networking Security (GCST 5344)</i>  |

*Italics = New Courses*

## **UNIVERSITY OF ARKANSAS PINE BLUFF (UAPB) BACHELOR OF SCIENCE IN ENGINEERING**

The administration of the University of Arkansas Pine Bluff (UAPB) and Board of Trustees of the University of Arkansas System request approval to offer the Bachelor of Science in Engineering effective Fall 2023. UAPB is accredited by the Higher Learning Commission and the proposed program is within the role and scope established for the institution. The University of Arkansas System Board of Trustees will consider the program for approval on May 24-25, 2023.

### **Program Description**

The proposed Bachelor of Science in Engineering will be the first of its kind at the state's only public Historically Black College or University. This program of study will offer underrepresented minorities in the Arkansas Delta region an educational opportunity in the areas of STEM.

This 123 credit-hour curriculum will include two tracks, Construction Project Management or Industrial Manufacturing. The Construction Project Management track will provide students with a general engineering background needed to solve construction related problems. It will also provide the management skills necessary to serve as a liaison between the owner and contractor, with an understanding of what is safe, efficient, aesthetic, and amenable for all parties involved. The Industrial Manufacturing track will prepare students with applicable knowledge in mathematical and scientific principles in the management and design of systems, execution of new product designs, improvement of manufacturing processes, and the management and direction of the physical or technical functions of an organization.

The proposed program will use existing facilities and coursework, with the need to develop only six new courses. UAPB plans to hire two new, doctorate-level faculty members to teach and conduct research in the Engineering program.

### **Program Need**

Engineers are vital in the creation of structures and products across the State, Nation, and the world. The U.S. Bureau of Labor Statistics projects employment growth with nearly 140,000 new jobs expected for engineers over the next decade. In 2021, engineers had a median annual salary of \$104,000, more than twice the median wage for all workers.

In recent years, the state of Arkansas has made a strong push for student interest, and subsequent enrollment, in STEM programs. UAPB is committed to this initiative and to the advancement of industrial growth in Arkansas through the development of the proposed degree program. Graduates of this program will be able to apply their knowledge of engineering and production with a goal of improving efficiency across the State.

## **Program Cost**

The Bachelor of Science in Engineering program will use existing facilities, equipment, and faculty for the first two years. Starting year three, new equipment, expanded laboratory capacity, and additional faculty will be funded by State General Revenue (E and G) and corporate sponsorships. A Title III grant has been secured to assist with personnel, equipment, software, and travel costs associated with this program.

## **Program Duplication**

Two other public institutions, Henderson State University and Southern Arkansas University, offer a bachelor's level degree such as the proposed program. Many other institutions offer programs in engineering. However, those programs are specified as Civil Engineering, Mechanical Engineering, Electrical Engineering, or Computer Engineering.

## **Program Goals/Objectives**

1. Prepare graduates with the knowledge, skills and abilities to complete computer-aided design of parts, facilities and project design by the end of their freshman enrollment year.
2. Prepare graduates to communicate effectively utilizing engineering terminology and techniques for effective results.
3. Prepare graduates with the knowledge, skills and abilities in design, quality, safety, project management, and supervision to lead employees and technical operations used to create products, goods and services by the end of their second year of enrollment.
4. Prepare graduates to collaborate with clients, architects, other engineers, upper management and other project members to determine and complete tasks.
5. Prepare graduates to use computer applications to solve problems related to data, management, spread sheets and Internet utilization.
6. Prepare graduates with a general education, which enables them to communicate verbally, perform mathematical computations, and exhibit social interest and responsibility.
7. Prepare graduates to display the sensibilities and character of a freethinking person capable of being a critical thinker, problem-solver and be a responsible citizen.
8. Prepare graduates to possess a range, depth, and scope of knowledge about engineering, management, operations and production efficiency.
9. Prepare graduates with skill sets that lead to continuous improvement.

## Program Enrollment and Graduation Projections

| Academic Year | Projected Enrollment | Projected Graduates |
|---------------|----------------------|---------------------|
| 2023 - 2024   | 30                   |                     |
| 2024 - 2025   | 58                   |                     |
| 2025 - 2026   | 90                   | 3                   |
| 2026 - 2027   |                      | 15                  |
| 2027 - 2028   |                      | 30                  |

## Program Requirements

### General Education Core

BAS 1120 Career Life Planning  
 BAS 1210 Personal & Social Development  
 ENGL 1311 English Composition I  
 ENGL 1321 English Composition II  
 MCOM 2390 Oral Communications  
 MATH 2510 Calculus I  
 BIOL 1350/1150 Biological Science  
 CHEM 1330/1130 General Chemistry I  
 ECON 2311 Macroeconomics  
 ECON 2321 Microeconomics  
 HLPE 1310 Personal Health and Safety  
 HLPE 11XX Physical Education

### Choose one of the following:

ENGL 2300 Introduction to Literature OR  
 ENGL 2360 World Literature I OR  
 ENGL 2361 World Literature II

### Choose two from the following:

HUMN 2301 Humanities OR  
 HUMN 2310 Logic OR  
 MUSI 2330/ART Music Appreciation OR  
 ART 2340 Art Appreciation

### Choose one of the following:

HIST 2315 US History to 1877 OR  
 HIST 2318 US History since 1877 OR  
 PSCI 2312 American Government OR

### Engineering Core

MATH 2370 Statistics OR  
 MATH 3320 Statistics and Probability  
 CHEM 1340/1140 General Chemistry II  
 PHYS 3310/1110 University Physics I  
 PHYS 3320/3120 University Physics II  
 CPSC 2300 Computer Science OR  
 CPSE 3300 Software Engineering  
 MATH 2520 Calculus II  
 MATH 3311 Linear Algebra OR



|           |  |
|-----------|--|
| MATH 4320 | Differential Equations                       |
| ENGL 3350 | Tech Writing OR                              |
| ENGL 3301 | College Grammar                              |
| ENGN 1100 | Engineering Orientation                      |
| ENGN 1302 | Engineering Graphics                         |
| ENGN 2310 | Fundamentals of Engineering                  |
| ENGN 3333 | Thermodynamics OR                            |
| CPSE 3347 | Data Analytics                               |
| ENGN 1201 | Industrial Safety Management Engineering     |
| ENGN 3300 | Engineering Economics                        |
| ENGN 4320 | Project Management/Estimating and Scheduling |
| ENGN 4307 | Quality Control Engineering                  |
| ENGN 4242 | Senior Project Capstone                      |

Construction Project Management Track – complete 24 hours

|                       |  |
|-----------------------|--|
| ENGN/TECH 1320        | Material, Construction, Proc. & Practices      |
| ENGN/TECH 2308/3313   | Strength of Materials (Mechanics of Materials) |
| ENGN/TECH 2315        | Site Planning & Layout                         |
| ENGN/TECH 2321        | Codes, Specs & Law                             |
| ENGN/TECH 2600        | Cooperative Education                          |
| ENGN/TECH 4300        | Internship                                     |
| ENGN/TECH 3302        | Advanced Design                                |
| ENGN/TECH 3317        | Structural Design                              |
| ENGN/TECH 3319        | Energy Conversion                              |
| <i>ENGN/TECH 3363</i> | <i>Plant Layout/ Facilities Planning</i>       |
| <i>ENGN/TECH 4318</i> | <i>Mechanical/Electric/Equipment</i>           |
| ENGN 2303             | Fundamentals of Statics                        |
| ENGN 3303             | Fundamentals of Dynamics                       |
| <i>ENGN/TECH 3399</i> | <i>Alternative Energy</i>                      |

Industrial Manufacturing Track – complete 24 hours

|                       |  |
|-----------------------|--|
| ENGN/TECH 2309        | Introduction to Robotics                 |
| ENGN/TECH 2367        | Manuf. Process of Materials & Assembly   |
| ENGN/TECH 2600        | Cooperative Education                    |
| ENGN/TECH 4300        | Internship                               |
| ENGN/TECH 3302        | Advanced Design                          |
| ENGN/TECH 3307        | Supply Chain & Inventory Management      |
| ENGN/TECH 3310        | Ergonomics and Human Factors Engineering |
| TECH 3365             | Manufacturing, Process & Planning        |
| <i>ENGN/TECH 4310</i> | <i>Logistics Engineering Management</i>  |
| <i>ENGN/TECH 4366</i> | <i>Automation Production Systems</i>     |
| <i>TECH 4370</i>      | <i>CAD/Computer-Aided Manufacturing</i>  |
| ENGN/TECH 4372        | Fluid Power Systems                      |

*Italics = New Courses*

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## **INSTITUTIONAL CERTIFICATION ADVISORY COMMITTEE (ICAC)**

The following applications may be reviewed by ADHE for possible consideration at the AHECB meeting in July 2023.

### Fielding Graduate University, Santa Barbara, California

Post-Baccalaureate Certificate in Clinical Psychology

Post-Doctoral Certificate in Neuropsychology Specialization

Post-Doctoral Certificate of Respecialization in Clinical Psychology

### University of Massachusetts Global, Irvine, California

Bachelor of Arts in Social Work

Master of Arts in Marriage and Family Therapy

Master of Social Work

### University of Southern California, Los Angeles, California

Graduate Certificate in Medical Product Quality

Graduate Certificate in Regulatory and Clinical Affairs

Master of Science in Health Systems Management Engineering

Master of Science in Materials Engineering (Machine Learning)

Master of Science in Operations Research Engineering

Master of Science in Petroleum Engineering - Digital Oilfield Technologies

Master of Science in Petroleum Engineering (Geoscience Technologies)

Master of Science in Management of Drug Development

Master of Science in Medical Product Quality

Master of Science in Regulatory Science