



Tab 15

## FY 2024 MoExcels Recommendations

Coordinating Board for Higher Education  
September 14, 2022

### BACKGROUND

The MoExcels initiative facilitates development and expansion of employer-driven education and training programs to substantially increase educational attainment and career opportunities for populations historically underserved by higher education.

In FY 2020, institutions submitted 39 proposals requesting a total of \$74.8 million in state funds. That year, the Governor and General Assembly funded 18 proposals totaling \$16.3 million. In FY 2021, institutions submitted 24 requests for new funds and two requests for continued funding from FY 2020 for a total of \$37.8 million. While these projects were not funded that year, the Governor and General Assembly funded 17 proposals totaling \$21.8 million in FY 2022. In FY 2023, institutions submitted 26 requests for new funds and two requests for continued funding from FY 2022 for a total of \$50.8 million. The Governor and General Assembly funded 21 projects totaling \$31.5 million.

### CURRENT STATUS

Staff reviewed the proposals and scored them using the rubric found in Attachment C, which was posted online and distributed to institutions along with proposal instructions on May 2. Proposals were due to the department on July 1, at which time staff followed up with institutions to seek additional information and clarify proposals. Staff from MDHEWD and the Department of Economic Development then reviewed scoring on August 12, and the attached ranked list (Attachment D) is the product of those processes.

For FY 2024, institutions submitted 25 requests for new funds for a total of \$50.3 million. Proposal summaries can be found in Attachment E.

### NEXT STEPS

Upon approval from the Coordinating Board for Higher Education, the funding recommendations in Attachment D will be sent to the Governor's Office and Office of Administration for consideration in the FY 2024 budget.

### RECOMMENDATION

Staff recommend that the Coordinating Board for Higher Education approve the attached list of funding recommendations for MoExcels.

### ATTACHMENTS

- A. FY 2024 MoExcels Request for Proposals
- B. FY 2024 MoExcels Application
- C. FY 2024 MoExcels Scoring Rubric
- D. FY 2024 MoExcels Recommendations
- E. FY 2024 MoExcels Proposal Summaries





# DEPARTMENT OF HIGHER EDUCATION & WORKFORCE DEVELOPMENT

## MoExcels

### FY 2024 Request for Proposals

The Missouri Department of Higher Education and Workforce Development (MDHEWD) is pleased to provide this MoExcels Request for Proposals (RFP). We look forward to receiving your submissions. Please send questions and submissions to Samantha Dickey at [Samantha.Dickey@dhewd.mo.gov](mailto:Samantha.Dickey@dhewd.mo.gov).

### Background Information

MoExcels funding will facilitate development and expansion of employer-driven education and training programs, including entrepreneurship, to increase educational attainment and career opportunities for populations historically underserved by higher education. Funding recommended through MoExcels, if appropriated, will be available for a single fiscal year. If full funding of a project requires a multi-year phase-in, each year's funding should stand on its own in the event that funds are not appropriated in subsequent years. A core funding increase may be requested after the third year in which a funded project achieves its performance goals.

### General Information

**Purpose.** MoExcels awards will fund projects that allow institutions to reach and serve new populations and to enhance support for underrepresented students in order to give individuals the opportunity to train for entrepreneurship and other in-demand occupations.

**Who May Seek Funding.** Proposals may be submitted by individual institutions or consortia of institutions. Only public institutions of higher education, including community colleges, State Technical College, and public universities, may submit proposals.

**Allowable Activities.** Funds appropriated through MoExcels may be used for outreach and recruitment efforts, student support services, professional and curriculum development, renovation of classroom space, the purchase of equipment, and other purposes approved in writing by the MDHEWD by June 17, 2022. Funds may not be used to pay students' tuition, fees, or other expenses.

**Match.** All proposals must include a match to cover a substantial portion of the cost of the new or expanded program, with a match of at least half being strongly preferred. Matching funds may be in-kind contributions but may not include the cost of staff time from the institution(s) proposing the project. The match can be provided by the institution; an organization; an

individual; a local, state, or federal agency; or a grant. Institutions may not use special project appropriations from the General Assembly, such as capital appropriations. While the match does not have to be in-hand, it must be firmly committed and documented.

**Funding.** Funding will be released as a reimbursement to institutions for project expenditures. Institutions must submit the MoExcels Reimbursement Form and supply copies of all invoices to MDHEWD to receive reimbursement.

**Performance and Project Reporting.** Funding recipients must report on performance on October 30, January 30, April 30, and June 30 each year until the program has achieved its objectives. MDHEWD may invite grant recipients engaging in similar activities to meet periodically to provide updates, identify best practices, problem-solve, and celebrate successes.

## Proposal Requirements

Applicants must complete the MoExcels application form. You do not need to submit any additional documents unless you are asked to do so by the review committee.

## Timeline

- May 2, 2022:** Call for proposals issued
- June 17, 2022:** 5:00 p.m.: Deadline to request approval to fund expenses other than outreach and recruitment efforts, student support services, professional and curriculum development, renovation of classroom space, and the purchase of equipment. Requests should be sent to [Samantha.Dickey@dhewd.mo.gov](mailto:Samantha.Dickey@dhewd.mo.gov)
- July 1, 2022:** 5:00 p.m.: Deadline to submit proposals to [Samantha.Dickey@dhewd.mo.gov](mailto:Samantha.Dickey@dhewd.mo.gov)
- September 14, 2022:** Recommendations presented to the Coordinating Board for Higher Education

## Review and Award Process

Proposals will be scored by a committee comprised of staff from MDHEWD and the Department of Economic Development. The committee will score proposals based on a standardized rubric (attached). The committee's recommendations will be conveyed to the Coordinating Board for Higher Education, which will make final ranking and funding recommendations to the Governor.

## **Funding**

MDHEWD reserves the right to recommend funding for a project in whole or in part, to request additional information, to reject any of the proposals submitted, and to re-issue this RFP and accept new proposals if the review committee determines that doing so is in the best interest of the state of Missouri. In the event that available funds exceed the total amount requested by all institutions, MDHEWD may invite institutions to submit requests for additional funding.

All costs incurred in preparation of proposals submitted in response to this RFP shall be borne by the institutions that apply for funding.



# Proposal Overview

Short name of project

Institution

Contact with questions:

Name

Title

Email address

Phone number

What problem are you addressing? (no more than 200 words)

What is your proposed solution? Is your proposal a new solution or based on a previously proven approach? (no more than 200 words)

## Projected credentials to be delivered

A credential is defined by USDOL as "an award in recognition of an individual's attainment of measurable technical or occupational skills necessary to gain employment or advance within an occupation"

	Baseline (AY 2022)	AY 2023	AY 2024	AY 2025	AY 2026	AY 2027
<b>Annual Total</b>	0	0	0	0	0	0
<b>Five-Year Total</b>	0					

Short Name of Project

Institution

### Labor Market Analysis

For each credential listed on the proposal overview, provide evidence of current and future labor market demand.

Credential	Current Supply	Projected Demand	Gap	Date Range of Data	Link to Source

Please provide additional notes regarding labor market analysis provided:

### Employer/Partner Commitment

Summarize the support expressed in attached letters of commitment. Mark each applicable column with an X.

Employer/Partner	General Support	Financial Support	Input into Curriculum	Provide Work-Based Learning Opportunities or Hiring Consideration	Other (Describe)

### Alignment with Strategic Plans

How does this proposal align with long-term local, regional, and statewide strategic plans for economic development?

Short Name of Project

Institution

### Project Plan

*Be as detailed as possible in your implementation plan, including enrollment and completion milestones for each credential proposed.*

Activity	Milestone	Span of Time

### Characteristics of Students Served by the Project

*Identify the population of students anticipated to be served through this project who are underrepresented in higher education or the program of study.*

Student characteristics	Current percentage of students	Targeted percentage of students	Source

*Please provide additional narrative to clarify your institutional goals:*

### Recruitment Efforts

*Detail how to you will recruit and support underrepresented students on your campus.*

### Educating Missouri's Workforce

*Identify the geographic area in which program completers are likely to work and any special efforts that will be made to ensure completers do so.*

### Financial Sustainability Plan

*How will this funding enable the institution to achieve discrete, sustainable objectives? How will additional operating costs be covered by the institution after the grant expires?*



Short Name of Project

Institution

## Report of Progress

*Please provide a detailed report of progress made since receipt of previous MoExcels funding, including credential enrollment and completion, state and match dollars expended, and any outstanding project tasks.*



# MoExcels Scoring Rubric

	Maximum Points	Points Assigned
Proposal provides evidence of a current and future labor market demand that is validated by Talent for Tomorrow labor market projections, MERIC, or other credible data source	8	
Proposal provides a credible plan for substantially addressing current and future labor market demand	9	
Proposal is supported by statements of need from employers and/or other partners in the area to be served that express real need and commitment	10	
Proposal aligns with long-term local, regional, and/or statewide strategic plan for economic development	5	
Proposal includes a detailed, realistic timeline	10	
Proposal provides evidence that students anticipated to be served through the program are underrepresented in higher education or the program of study	8	
Proposal provides a credible plan for recruiting and supporting underrepresented students on the campus	9	
Proposal identifies geographic area(s) in which program completers are likely to work and those areas are primarily in Missouri	8	
Proposal articulates a plan by which funded activities will be sustained after the funding period ends	5	
Proposal includes a detailed, realistic budget	5	
Proposal includes a funding match of at least 50%	5	
Proposal is well-written, follows the format requested, and reflects substantial thought and planning	8	
<b>Cost per additional student served as a result of funding, annually</b>		
In top quartile of proposals (lowest cost per completer)	10	
In second quartile of proposals	7	
In third quartile of proposals	4	
In lowest quartile of proposals (highest cost per completer)	1	
Fidelity to work plan: Has the institution fallen short of its performance goals in previous MoExcels cycles?	-5	
Fidelity to budget: Has the institution struggled to spend the funding it's received and/or not done its due diligence in documenting expenditures (including match)?	-5	
<b>Total Points</b>	<b>100</b>	<b>0</b>



<b>Rank</b>	<b>Institution</b>	<b>Project Title</b>	<b>Funding Request</b>
1	State Technical College of Missouri	Infrastructure Village	\$ 1,995,500.00
2	Lincoln University	Lincoln Innovative Strategies for Teacher Recruitment	\$ 150,000.00
3	Missouri University of Science & Technology	Improving Workforce Diversity through STEM Education	\$ 841,000.00
4	Northwest Missouri State University	Growing Missouri's Healthcare Workforce	\$ 497,084.00
5	University of Missouri--Columbia	Enhancing Future Dairy Farmworkers	\$ 50,223.39
6	State Fair Community College	Center for Advanced Agriculture & Transportation (CAATT)	\$ 4,462,525.00
7	Jefferson College	Veterinary Technology Clinic	\$ 2,000,000.00
8	Crowder College	Crowder College - Advanced Training Center	\$ 3,000,000.00
9	University of Missouri--St. Louis	Center for Behavioral Health Practice-based Learning	\$ 767,500.00
10	University of Missouri--Columbia	Industry 4.0 Laboratory Development and Certification	\$ 1,000,000.00
11	Missouri State University	Construction Industry Training & Education Environment	\$ 2,000,000.00
12	St. Louis Community College	St. Louis GeoTech Workforce Expansion	\$ 754,750.00
13	University of Missouri--Kansas City	Student Career Pathways	\$ 1,536,000.00
14	Metropolitan Community College	MCC Science Laboratory Upgrade Phase II	\$ 6,485,008.00
15	Southeast Missouri State University	Health Sciences Training	\$ 5,600,000.00
16	Metropolitan Community College	Metropolitan Community College (MCC) Agriculture Institute	\$ 2,956,432.00
17	Missouri Southern State University	Center for Applied Data Analytics (CADA) and M.S. in Data Analytics	\$ 474,967.00
18	Metropolitan Community College	High-tech (HT) Automotive Institute	\$ 3,500,000.00
19	University of Missouri--St. Louis	Center of Excellence in Controlled Environment Agriculture	\$ 365,000.00
20	Ozarks Technical Community College	Agriculture and Electrical Distribution Systems Training Center	\$ 2,500,000.00
21	North Central Missouri College	Production Agriculture Training	\$ 80,000.00
22	Mineral Area College	MAC Automotive Tech	\$ 4,392,506.00
23	St. Charles Community College	Workforce Technical Innovation and Transformation HUB	\$ 2,060,000.00
24	University of Central Missouri	Construction Management & Safety Sciences Lab Renovation	\$ 1,500,000.00
25	Harris-Stowe State University	Expanding and creating online programs for marginalized communities	\$ 1,300,000.00
			TOTAL \$ 50,268,495.39





## **Crowder College Advanced Training Center**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

The demand for skilled technicians is growing in southwest Missouri as many workers leave the skilled trades and fewer students enter these pathways each year. CC currently offers CNS, AMT, Advanced Welding, Drafting, & Healthcare certifications at the Joplin Advanced Training & Technology Center (ATTC). The center was started as a partnership between the Joplin Chamber of Commerce and Crowder College to address business and industries' need for skilled employees. During the first five years of this partnership (2016-2021), ATTC has experienced a dramatic enrollment increase of 788.24%. Through flexible class scheduling & accelerated training formats, students can complete a certification in 1 to 2 semesters. CC's customized/non-credit training unit (Training & Development Solutions (TDS)) is also housed at the ATTC. CC currently rents 30,687 sq. ft of 51,140 sq. ft from the Joplin Chamber of Commerce Foundation. Purchasing the facility would add another 20,453 sq. ft for expansion & new programs, provide unique educational & training opportunities in the area, and establish a permanent technical education training center.

### **PROPOSED SOLUTION**

CC seeks funding to purchase the ATTC from the Joplin Chamber of Commerce Foundation. The requested funding will assist in minor renovations (reconfiguring classrooms, offices, etc.). CC will match the funds requested from the state with local funds to purchase the building and establish a permanent technical education training site in Joplin. Local funds would be utilized to hire additional full-time employees to support the expansion of new technical education programs that are needed in the region. Faculty will be hired to create surgical technology (2), electrical (1), culinary arts/hospitality management (1), and engineering technology (1) programs. CC's commitment to workforce education will be supported by adding a full-time workforce development director and administrative assistant. They will lead non-credit and credit customized professional development and technical training programs for regional business and industry partners. The current programs at the ATTC will be enhanced through the purchase and expansion of the site by creating opportunities for collaboration in high-demand areas like food manufacturing between culinary arts and advanced manufacturing. Joplin is an ideal location for a technical education center due to its central location in the area to serve both students and businesses.



## **Harris-Stowe State University** **Expanding and creating online certificates for marginalized communities**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

"Traditionally, Harris-Stowe State University, the only HBCU in St. Louis, has been a traditional university, focused on in-person learning. The pandemic helped us realize that there is an immediate need for well structured online programs built on a sustainable platform and infrastructure. Current scholars, and a new market of individuals seeking to return to school to complete their education but may have other work and life responsibilities, will benefit from online programs.

We've also learned that the majority of our traditional faculty members need development in order to teach effectively and create active learning ecosystems in the online environment.

Expanding and creating new online certificate programs for Harris-Stowe will provide opportunities to individuals to return to school, obtain a credential, and enter or advance in the workforce. It will also provide faculty with new teaching strategies, methodologies, and technologies that will improve the learning environment."

### **PROPOSED SOLUTION**

HSSU has identified four online programs that we feel are essential to the growth of Harris-Stowe State University and the community that is served.

1. Cybersecurity Certificate
2. Healthcare Management Certificate
3. Digital Marketing Certificate



## **Jefferson College Veterinary Technology Clinic**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

The Veterinary Technology (VAT) Program has grown to serve as a regional training provider for veterinary and agricultural employers in Eastern Missouri. Our current facility is inadequate to meet the workforce training necessary to increase the number of graduates that we are able to produce each year. To optimize the expansion of our cohort size from 36 to 48, Jefferson College seeks to address a critical space challenge within the current clinical and laboratory setting. Currently, the VAT space limits laboratory sections to 12 students with four students per examination table. The Clinical Pathology Suite exceeds capacity, and students have to relocate equipment to complete required skills. The Surgical Suite is limited to three students with the veterinarian. Although Jefferson College, through State and other funding sources, has addressed limitations in the large animal facility and the kennel structure, space challenges associated with clinic, classroom, laboratory, and clinical simulation areas remain problematic. Jefferson College's VAT Program is in its original space from 1976. The American Veterinary Medicine Association (AVMA) has noted on several on-site evaluations that our current facilities do not "emulate a contemporary veterinary practice".

### **PROPOSED SOLUTION**

Jefferson College looks to build an approximately 10,000 square foot facility to include a veterinary clinic, classroom, laboratory, animal housing, and faculty offices. Located off of the Farm Road in closer proximity to the Barn and Kennel structures, this facility will allow the program to grow cohort sizes to 48 students and will alleviate the concerns raised by the AVMA by providing "a contemporary veterinary practice". This building will provide modern radiology, surgical, and examination rooms to prepare students for future work environments in the agricultural and veterinary fields. In this facility, we will be able to accommodate 16 students per lab section with two students per examination table, an adequately sized Clinical Pathology Suite, and a Surgical Suite that will allow a greater number of students to participate in hands-on learning. Ultimately, the new facility will provide a modern veterinary space for enhanced student learning and engagement.



## **Lincoln University** **Innovative Strategies for Teacher Recruitment**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

LU is looking to expand its programs that are addressing the teacher shortages in Special Education (SPED) and STEM areas. DESE shows that during the 2020/21 school year nearly 5% of the teaching vacancies in the state went unfilled or were filled with underqualified personnel. According to DESE, SPED and the STEM fields are high needs areas in teaching. There is also a need for teacher recruitment and retention. To help this need. Once students are recruited, it is imperative that we are able to keep them, which entails making their experience in college a good one. This starts with preparing college faculty. Currently, LU has two programs that are addressing these needs: 1) Reaching Equity Goals at Lincoln (REGAL) Scholars Program (NSF Noyce Grant) to recruit and retain underrepresented populations as STEM educators, and 2) Para to Pro program to help paraprofessionals complete their teacher certification in elementary or special education.

### **PROPOSED SOLUTION**

Our solution is based on expanding programs that are being conducted on campus currently. The approaches that are being used have been vetted. REGAL went through the rigorous process of the National Science Foundation; and prior to offering the Para to Pro program, Lincoln met with members from Teacher Certification in DESE and with the Missouri Department of Higher Education to make sure the program was viable. With MoEXELS we will be able to 1) Expand on our NSF grant 2) Enhance outreach/recruitment 3) Train faculty to help address retention 4) Provide a learning experience for our students that will better prepare them for the classroom 5) Being a land grant institution which is an HBCU, it uniquely positions us to continue to attract a more diverse population by leveraging our Research/Extension programs as an integrated approach to STEM education.



## **Metropolitan Community College MCC Advanced Technical Skills Institute**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

Metropolitan Community College has agricultural training programs that are well-regarded within their respective professions. The Vet Tech program has provided a quality education since 1973. However, MCC currently lacks sufficient facility space and other resources to train the volume of students necessary to meet local industry needs.

In 2019, MCC's Board of Trustees approved the new A.A.S. degree in Agriculture, which increased the need for additional space and resources. This degree offers the following pathways:

- Agribusiness: Students going into the business, economics, marketing, farm management, or logistics of agriculture
- Plant science: Students going into horticulture, agronomy, hydroponics, aquaponics, aeroponics, landscaping, turf management, greenhouse management, or urban agriculture
- Animal science: Students going into livestock production, aquaculture, animal nutrition, meat science, or veterinary science

MCC's new Agriculture Science Institute introduces the need for a building that fosters interaction with industry, focused study, and intensive learning. The program's long-term vision is to impact both rural and urban communities through a variety of opportunities including dual enrollment, Future Farmers of America partnerships and hydroponic farming.

### **PROPOSED SOLUTION**

With the growth of life science and agriculturally-focused industries in the region, MCC embraces future demand for training students to enter professions needed by area businesses. It is with this focus and growth of programs that MCC recently created the Agriculture Science Institute. MCC took into consideration 35+ metro area post-secondary agriculture programs, emerging partnerships with area Universities, 150+ secondary schools in the metro, and economic drivers (Animal Health Corridor, USDA).

The MCC Agriculture Institute will prepare individuals to manage or work in agricultural businesses and agriculturally related operations within diversified corporations. Programs provide instruction in agriculture, agricultural specialization, business management, accounting/finance, marketing, animal science, plant science, soil science, and other managerial responsibilities. The proposed project involves construction of greenhouse facilities and an Agricultural Sciences building addition to allow the program to complement/expand offerings. The programs involve actual experience in managed agricultural environments.

MCC offers veterinary technician courses at the Maple Woods campus, veterinary assistant and receptionist classes at the Maple Woods and Blue River campuses, pre-veterinary prerequisites at all five MCC campuses, and practice management courses at all four MCC campuses and online. With additional funding, MCC could expand upon the existing programs located at multiple campuses.



## **Metropolitan Community College High-tech (HT) Automotive Institute**

Coordinating Board for Higher Education  
September 14, 2022

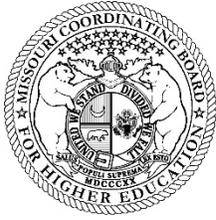
### **BACKGROUND**

Metropolitan Community College (MCC) currently lacks sufficient space to house training labs that are both large enough and equipped to accommodate the volume of students necessary to meet automotive industry needs in the Kansas City region. According to the Missouri Economic Research and Information Center (MERIC), the state has a projected need of more than 6,000 automotive repair professionals in the areas of service technicians and mechanics, auto body repairers, and diesel engine specialists over the next two years. Many auto industry experts and sources have advised MCC automotive program staff about the demand for auto technicians during the COVID-19 pandemic, which is projected to continue as the pandemic eases. The Bureau of Labor Statistics (BLS) 10-year outlook for vehicle repair occupational categories predicts average to faster than average growth. MCC has recently re-launched its collision repair program and requires additional space and resources to expand its footprint and accommodate additional students. In addition, MCC does not currently have the facility space to accommodate its proposed program in Diesel Technology, which it is in the process of developing in response to industry need as demonstrated by the above data and at the urging of its program advisory board.

### **PROPOSED SOLUTION**

The MCC High-tech (HT) Automotive Institute expansion will enhance existing automotive campus programs and allow development of new programs in high demand areas of employment training needs, including automotive technology, electric vehicle repair, small engine repair, diesel, collision, large vehicle, power sports, and agriculture technology. This expansion includes lab spaces, equipment, and general instruction facilities to support the programs. The project also involves major infrastructure changes, including new construction and renovations. Renovation of the current space will accommodate new programs in Collision and Diesel Technology, and expansion of the facility will provide state-of-the-art training labs for students in the general automotive programs and related high technology fields.

The program and building are located at the MCC-Longview campus in Lee's Summit. Expanding the physical facilities will allow MCC to enroll multiple cohorts of students, resulting in meeting more of the industry needs for our region and for the State of Missouri. The College will also be able to begin offering a new program in diesel technology and respond to other program development needs in related fields as those needs are demonstrated. This project contributes significantly to the regional economy by helping to address critical shortages in high priority occupations.



## **Metropolitan Community College Science Laboratory Upgrade Phase II**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

To meet the continued strong demand for our graduates, the College recognizes the need to provide hands-on, in-person laboratory instruction in state-of-the-art facilities. To prepare for the future, and to ensure that MCC continues to offer contemporary hands-on instruction, the science laboratories (Biology, Anatomy, Micro Biology, Geology, Chemistry, Physics, Botany, Healthcare, and Zoology) are in need of attention. These tired facilities require enhancements and upgrades to meet current and future needs. MCC adapted to the requirements of the pandemic by offering more laboratory sections with fewer participants to support social distancing. Even with this adjustment to scheduling and access, course completion was a challenge for many students, as current lab capabilities were inadequate to support both virtual and in-person teaching and learning. Also, the additional wear and tear on the facilities put a strain on resources. In an effort to address the ongoing needs during and after the pandemic, MCC has started an initiative to significantly enhance all College laboratories. The upgrades will allow MCC to provide the required contemporary laboratory environment, and to do so without being hampered by physical limitations.

### **PROPOSED SOLUTION**

In 2021, MCC started the quest to enhance and upgrade the College science laboratories. This includes all science labs at multiple locations: 6 science labs at MCC Blue River, 8 at MCC Maple Woods, 8 at MCC Longview and 9 at MCC Penn Valley. These laboratories at all locations provide an in-person, in-depth experience for students to satisfy their science requirements and/or electives. MCC has already begun the quest and seeks additional funding to complete the entire project. With updated and enhanced lab facilities, the College will be able to train more students in the STEAM (Science, Technology, Engineering, Arts, and Math) fields, especially the sciences, in more contemporary laboratories. The project involves major infrastructure changes, including new construction and renovations (IT, HVAC, security, lighting, roofs, signage, functional improvements, facilities' interiors & exteriors, electrical, plumbing, etc.) that will allow MCC to continue to offer a contemporary, welcoming and safe environment where teaching and learning can take place. Ensuring students have a strong foundation, and expertise, in the sciences will increase our society's ability to recover from COVID-19 and prepare for future challenges.



## **Mineral Area College Automotive Tech**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

In 2019 Mineral Area College embarked on a major expansion of workforce programs to meet the needs of local industry and workforce. That expansion has resulted in the construction of welding, HVAC, and an 80,500 square foot Industry and Technology Center (formerly known as Center for Excellence in Career and Technical Education). This expansion has allowed MAC to become a comprehensive community college, expanding beyond transfer education.

The work is not done yet. Our current facilities provide (or will provide when construction is complete): welding, HVAC, fiber optic programming/installation, construction management, industrial electrical maintenance, machine tools, and customized training for workforce development.

The next program that is in high demand in our region is auto tech. Our mechanics and dealers are demanding trained technicians. This is a high demand, well paid position (2020 mean salary \$44,010: MERIC 2022) in our region.

Most recent MERIC data available shows 93 openings in our region, 1,839 statewide in this field with a projected increase of 276 open positions in the next two years (MO Occupation 2021-2021: MERIC 2022).

### **PROPOSED SOLUTION**

The college proposes building a 20,000 square foot expansion of the Industry and Technology Center for a drive-thru automotive technician training facility as Phase 3 of our workforce expansion. This expansion will connect directly to the larger facility that will include faculty offices, classrooms, and over 10,000 square feet of shop space. This space will allow students to be trained in a setting identical to several local auto dealers and shops.

In 2022 MAC has kicked off our capital campaign. This will serve as the match for our request. We will also work with local dealerships and shops for in-kind donations of equipment and services.

Our facility will be able to provide training in electric/hybrid vehicle maintenance, light automotive repair and maintenance through hands-on experience in short-term training that prepares the students for placement in the industry.

The automotive technology program at Mineral Area College will help students reach their National Institute for Automotive Service Excellence (ASE) certification and assist students gain their manufacturer specific certifications by collaborating with local dealerships.



## **Missouri Southern State University Center for Applied Data Analytics (CADA) and M.S. in Data Analytics**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

With 6,996 relevant job postings for data analysts in the southwest corner of Missouri and surrounding areas in June 2022, it is obvious that there is a need for education and training in the field. According to The Bureau of Labor Statistics, the robust labor market demand for data analytics workers can be attributed to organizations seeking "to improve business planning and decision-making." The healthcare, manufacturing, law enforcement, marketing, and financial industries all collect large amounts of data that are valuable, but need more qualified staff to organize, analyze and present the data in a usable way (Harvard Business Review). As a result, employers with business intelligence needs have high demand for data analysts. Four universities in Missouri currently have graduate degrees in data analytics. None of these are in or near southwest Missouri, with two private institutions in Saint Louis, one private institution in Kansas City, and one public institution in Maryville.

### **PROPOSED SOLUTION**

Missouri Southern State University proposes to develop and implement a Master of Science in Data Analytics degree with possible tracks or graduate certificates in business, healthcare administration, and criminal justice housed within the new Center for Applied Data Analytics (CADA). Space in Plaster Hall on campus has been designated for renovations to accommodate CADA. Both the academic program and the Center will be built through collaboration with area and regional industry partners. Student learning outcomes and curriculum will be determined by the current and future needs of potential employers. Requested support from industry partners will include potential internships and projects for students, as well as large "scrubbed" data sets for faculty to use in courses. Possible research opportunities for faculty and industry partners would be to work together to develop best practices in the gathering and analysis of data, but also in developing best practices for communicating and "storytelling" of the results and recommendations to management. Other outcomes of MSSU/industry collaboration could include training for existing employees to update their skill sets in gathering and analyzing data, to understand basic statistics and data testing, and to learn the newest platforms for data visualization.



# Missouri State University Construction Industry Training & Education Environment

Coordinating Board for Higher Education  
September 14, 2022

## BACKGROUND

The construction industry is suffering from a perfect storm of workforce challenges including an aging workforce demographic, a shrinking pool of skilled applicants, diminishing educational/experience opportunities during secondary education, and a rapidly growing demand for infrastructure development and revitalization. Currently, the U.S. construction industry workforce is 89.0% male and 87.9% white. Additionally, the national median age of construction workers (42.3 years) is increasing at a rate faster than the median age for all industries. To address the growing needs of the economy and the challenges of finding the workforce of the future, it is critically important that new and more diverse segments of the population understand the full range of options available within the construction industry. This includes helping historically underrepresented populations not only learn about career opportunities within the construction industry but also gain first-hand experience and relevant credentials that will prepare them for employment. This proposal focuses on creating a balanced approach including outreach activities, hands-on skill enhancement, increased access to a B.S. Construction Management program, and multiple career pathways that will help attract, educate, train, and retain the construction workforce for the future.

## PROPOSED SOLUTION

This proposal will support the creation of a construction education and training hub for Southwest Missouri. Similar to other facilities across the country, this collection of educational spaces, hands-on laboratories, and industry & community partnerships will help form the skilled construction workforce of the future. The proposal calls for a renovation and addition to MSU's Kemper Hall and will utilize outreach activities, hands-on skill enhancement, and access to multiple career pathways to address workforce demands. First, the proposal will allow for a significant increase in the number of individuals who will earn their B.S. in Construction Management credential. Additional classroom and lab space will allow the degree program to grow beyond its current space-constrained capacity. Second, this proposal will create a space where individuals can gain hands-on exposure to and experience with construction equipment and tools. This is especially important for historically underrepresented populations where both the emphasis on and the access to construction and other fabrication activities in secondary education settings is decreasing. Lastly, the proposal will help support the need for continuing workforce development needs by creating a space where regional training efforts can be housed, especially those that require a physical demonstration component.



# Missouri University of Science & Technology Improving Workforce Diversity through STEM Education

Coordinating Board for Higher Education  
September 14, 2022

## BACKGROUND

Women are significantly underrepresented in the STEM professions nationwide. At Missouri S&T, Missouri's leading STEM-focused public university, women make up only 22.8% of the undergraduate student population. This compares with the figures at the highest ranked national public universities with a STEM emphasis, Georgia Tech (40.1%), Purdue (42.7%), and Virginia Tech (42.7%). Many reasons exist for the lower numbers of women in STEM professions, from the cultural amplification of childhood preferences to the design of university curricula that emphasize mastery of fundamentals over entrepreneurial and problem-directed thinking. A second workforce gap involves students from underserved, often rural schools that do not have the resources or properly trained faculty to teach STEM subjects. Students at S&T with federal Pell-grants have graduation rates 20% lower than their peers. Both gaps can be closed, first by filling the educational pipeline with K-12 females and underserved students who have academic and career interests in STEM-related fields and then by developing campus-support programs specifically for them. The State of Missouri has a projected workforce shortfall of science and engineering talent that could be erased if S&T attracted and retained female and underserved STEM students at rates comparable to those nationally ranked public universities.

## PROPOSED SOLUTION

We will expand the numbers of female and Pell-eligible students in Missouri's STEM-workforce through a multi-layered approach that engages K-12 students, K-12 teachers, existing (and future) female and Pell-eligible S&T students, and existing (and future) faculty and facilities at Missouri S&T. First, we will expand the services offered by the Kummer Center for STEM Education to K-12 teachers and students throughout south central Missouri, including a lending library of STEM teaching equipment and appropriate training for teachers to help fill the pipeline of students engaged in STEM. Second, we will design and expand educational experiences for existing S&T students that integrate scientific rigor with open-ended innovation, entrepreneurship, and pro-social outreach—approaches that are known to appeal to today's students. The Kummer College of Innovation, Entrepreneurship and Economic Development will be home to these programs which will incorporate facilities from our iCorps entrepreneurship program, Center for Arts and Innovation, and the Innovation Lab. Finally, we will develop intentional and sustained advising, mentoring, and role modeling programs for female and underserved students to increase their success and their sense of belonging, in alignment with a recently announced \$1M, three-year NSF ADVANCE grant to develop female STEM faculty.



## **North Central Missouri College Production Agriculture Training**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

The economy of northern Missouri is heavily dependent on production agriculture, which increasingly relies on advanced technologies. Many students in urban areas like St. Joseph are not even aware of agriculture as a career path. Rural populations, who are under-represented in higher education, often do not realize that post-secondary training at a community college can improve efficiency of their own production operations or the farms where they are employed. North Central Missouri College has excellent training programs available in production agriculture, but seeks to improve its outreach and recruiting, and to purchase several items of equipment that will support industry-standard training.

### **PROPOSED SOLUTION**

NCMC will conduct outreach activities showing potential students typical production agriculture technology to excite them about training opportunities. The college already owns some precision equipment for demonstrations, but in addition to the trailer would like to purchase a skidsteer loader, a 3-d color livestock ultrasound, and a CNC plasma cutting table for hands-on recruiting and training activities.

\*\*When asked, we received the following information about the location: The equipment would all be housed at our Barton Farm Campus in the Trenton area.



## **Northwest Missouri State University Growing Missouri's Healthcare Workforce**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

Workforce gaps in healthcare and related fields are an ongoing challenge in Missouri. To address this issue, Northwest Missouri State University's School of Health Science and Wellness has engaged in program development and realignment activities for the past 7 years. As a result, academic programs are better aligned with the needs of our region, providing professional preparation for those pursuing careers in areas such as Dietetics, Nursing, Physical Therapy, Occupational Therapy, Recreation Therapy, Athletic Training, Social Work and Counseling, Cardiac Rehabilitation and health sciences in general. Overall enrollment within the School has grown by 15% during this strategic realignment, with a 30% increase in healthcare related student-majors. Enrollments and program completers are expected to continue to trend upward in our healthcare majors despite the declining college-aged population. One challenge to this continued growth and quality education experience is the lagging infrastructure (classrooms and equipment) that are necessary to support these specialized academic programs. In particular, the academic programs associated with these fields require flexible modes of delivery that can meet the diverse needs of the prospective student population, as well as state-of-the-art laboratory equipment necessary for providing training that reflects current best practices.

### **PROPOSED SOLUTION**

This project will enhance program capacity and quality of training available to students in healthcare and wellness-related programs at Northwest Missouri State University. Capacity will be enhanced through the development of four virtual classrooms to allow exceptional on-line learning experiences to be delivered to students while simultaneously conducting the class on-site in a physical classroom (classroom hybridization). Virtual classrooms allow for more students to take part in the program at once while also enhancing the ability to engage in classroom experiences when participating from remote locations. In addition, the quality of training will be enhanced through the acquisition of cutting-edge equipment and learning tools associated with the fields of health and medicine. These tools will enhance school laboratories associated with topics such as anatomy and physiology, medical nutrition, exercise prescription, health and wellness, and biomechanics that are critical to the fields of nutrition, nursing, public health, physical therapy, occupational therapy, athletic training, social work, counseling and other professional areas in behavioral health and physical medicine.



## **Ozarks Technical Community College Agriculture and Electrical Distribution Systems Training Center**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

The new Agriculture and Electrical Distribution Systems programs at Ozarks Technical Community College's (OTC) Richwood Valley Campus are both in need of capacity expansion to meet high student and employer demand. In the fall of 2019, the Agriculture program re-located to the Richwood Valley Campus with the opening of a new training center funded by local taxpayer support. Enrollment at the program has grown by 31% since this re-location. Although there is sufficient student demand to create a second cohort, the program has already reached the limits of its classroom capacity. Responding to demand from local utilities, OTC also began offering Electrical Distribution Systems at Richwood Valley in Fall 2021. The program filled to its full capacity of 24 for the first cohort class and has grown to 48 with the start of the second cohort this year. This rapid growth in enrollment has created the need for indoor training facilities similar to those serving the program at OTC's Lebanon Center.

### **PROPOSED SOLUTION**

OTC is proposing to build an additional training center adjacent to the existing Richwood Valley Campus (RVC) Agriculture Training Center to meet program capacity needs. This center would be approximately 15,000 square feet in size and provide classrooms, labs, and offices for both Agriculture and Electrical Distribution Systems. This additional building would allow OTC to offer a second daytime Agriculture cohort to meet the demands of both secondary and post-secondary student interest in the program. It would also provide indoor lab and equipment storage space needed by the Electrical Distribution System program which has already reached its student capacity. Attached to this application are 17 letters of support from local partners and a site plan for the facility.



## **St. Charles Community College Workforce Technical Innovation and Transformation HUB**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

SCC proposes to further develop its vision to create a Workforce Innovation and Transformation HUB. In-demand workforce skills needs and skill gaps continue to expand; therefore, it is critical innovative resources and strategies be implemented to assist with closing these gaps.

The individuals within the Northeast and the St. Louis MSA regions, while one is more rural where the other is Urban; are impacted by on-going economic challenges in similar ways. Individuals in these areas have limited access to technology (due to cost and/or lack of connectivity), transportation (increased cost of gas and geographic areas where no public transportation is available or public route access is limited), increase cost of housing, and loss of childcare resources (in person K-12 challenges and/or daycare). These challenges coupled by dramatic increases in current and projected job openings in key industry sectors serves as the foundation for this request. This demand can be attributed to many reasons, some previously mentioned, retirements/career transition, net company growth and new expansions. This initiative seeks to reinforce and further SCC's current efforts to address the lack of:

- qualified workers in key career pathways
- access to equipment to support in-demand programs
- access to technical training programs and resources

### **PROPOSED SOLUTION**

Further SCC's position as regional Workforce Innovation and Transformation HUB in-order to: 1) Respond to the current and emerging workforce skill needs of employers; 2) Provide better and more inclusive access to the skill-based programs needed to successfully transition onto and progress within in-demand career pathways. Strategic in-demand career pathways targeted: Information Technology; Transportation/Logistics; Applied Engineering/Industrial; Energy, Construction & Manufacturing; Food/Agriculture, Education/Childcare and Healthcare.

This project proposes: 1) Development and expansion of state-of-the-art facilities to support skill-based training strategies; 2) Development of new innovative approaches to economic development within the region and Missouri, by showcasing new technological innovations; 3) Timely, hands-on/experience based programming, including aspects of Apprenticeship; 4) Collaborative strategies for programming to support career pathway development, including increased and expanded partnerships with industry, industry associations and accrediting/licensing agencies; 5) Collaborative strategies for management and organizational program development and entrepreneurial success; 6) Exploration of micro enterprise opportunities with business and industry to encourage economic growth; 7) Establishment/expansion of engagement strategies to inform emerging students and returning learners to opportunities within these in-demand, highly skilled career pathways; 8) Engagement of employer partners and industry associations to develop and implement collaborative competency based career progression strategies for their incumbent workforce.





## **St. Louis Community College St. Louis GeoTech Workforce Expansion**

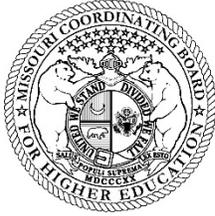
Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

St. Louis is advancing development of local geospatial-related industries as a driver of regional job growth that will be supported by the new headquarters under construction of the National Geospatial-Intelligence Agency (NGA). The economic benefit of the geospatial-related occupational workforce in the St. Louis region is projected to reach 27,000 jobs and nearly \$5 billion (GEO Futures, June 2020). Employer demand is high for educational programming to support data generation with Unmanned Aerial Vehicles (drones), survey technicians to analyze data and geospatial technologies technicians. There is a lack of certificated training programs to meet workforce demand and to provide a pathway for advancing STEM careers with Geospatial Information Systems (GIS) degrees. A FAA license for commercial drone piloting is a gateway to begin geospatial information and other STEM career tracks. Women represent only 6.7% of UAV commercial pilots (FAA, 2019) and are underrepresented in all STEM careers (27%). Black workers represent only 9% of the STEM workforce (U.S. Census 2021). This is important because STEM employment growth is projected to outpace economy-wide employment growth from 2019 to 2029 (9.2% for STEM jobs vs. 3.7% overall) (PEW Research Center, April 2021).

### **PROPOSED SOLUTION**

St. Louis Community College will begin a new program for geotech workforce expansion to engage students for STEM occupations with three new certificate programs to be used for high-demand employment and as components of a credit program that leads to an AAS degree or as a pathway to further education. Commercial drone pilot training will include hands-on drone training in a netted structure and classroom instruction. Program completers will receive a certificate and be eligible to take the FAA 107 licensing exam for commercial drone pilot. The Survey Technician program will include classroom and field training using state-of-the art equipment and will result in a Certificate of Specialization. An additional course will be provided with a Geospatial Technology Certificate. This program will be offered on two STLCC campuses (Florissant Valley and Wildwood) to increase opportunities for student participation. A targeted recruitment campaign will prioritize female and Black participants. STLCC staff have identified potential employers and will provide student completers with interview opportunities, as available. A netted structure is required on both campuses for the drone flight training due to FAA restrictions. Curriculum will be developed, other necessary equipment purchased, and faculty trained to teach the classes.



## **Southeast Missouri State University Health Sciences Training**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

Missouri is suffering from a shortage of healthcare workers. A May 11, 2022, KZRG news story, states that 109 of Missouri's 114 counties have insufficient health care workers. A June 14, 2021 study by UM says "Out of the 114 total counties in Missouri, 97 are designated as health care professional shortage areas." MERIC data shows the healthcare industry in Missouri saw a significant negative employment change from 2019 to 2020. Additionally, healthcare is listed as one of the most in-demand occupations. Specific to southeast Missouri, the home of Southeast Missouri State University, MERIC's 2021 Economic Report for the Southeast Region projects ambulatory health care services and hospitals to be two of the top four growth industries between 2018-2028, calculating a need for nearly 2,200 more healthcare related workers over the next several years. SEMO is well positioned to help address the healthcare workforce needs. However, investment is necessary to ensure students learn in modern environments, that the University's programs comply with accreditation standards, and to help the University expand its healthcare and allied healthcare offerings in the years ahead.

### **PROPOSED SOLUTION**

SEMO is finalizing plans to build a new Health Sciences Building as part of a comprehensive, dual-role, multi-use complex that is under development on its main campus in Cape Girardeau. The Health Science Building will provide new classrooms, clinical and other experiential learning space, and industry collaboration venues to build and sustain the health care workforce. The building will also include several laboratories such as an Allied Health Laboratory, Biology (Physiology) Laboratory, Virtual Anatomy Laboratory, and Life Science (Biomechanics) Laboratory, equipped to provide new training opportunities for direct care workers through demonstration projects and the identification of effective treatment options. It will also include space to enhance already strong collaborations with local healthcare organizations. The MoExcels application seeks funding to purchase equipment, fixtures and systems furniture for the new Health Sciences Building (laboratories, classrooms, study spaces, collaboration areas, etc.). A fully equipped Health Sciences Building is necessary to ensure SEMO can adequately support workforce development and training for STEM, health and life sciences, and allied health professionals.



## State Fair Community College Center for Advanced Agriculture & Transportation (CAATT)

Coordinating Board for Higher Education  
September 14, 2022

### BACKGROUND

Regional transportation and agriculture industries are nearing crisis. A study by the American Trucking Associations estimates the industry must recruit one million drivers within nine years to replace retiring drivers, and the TechForce Foundation reported that the supply of Auto Service Technicians & Mechanics dipped in 2020, while demand increased. The 2021 Transportation Technician Supply & Demand Report revealed that the shortage of transportation technicians (i.e., bus and truck mechanics and diesel engine specialists) continues to worsen. Demand for technicians increased from 136,503 in 2020 to 258,000 in 2021. Last year's demand outpaced supply three to one; now, it is estimated to be five to one. Western Equipment Dealers Association conducted a member survey that revealed a direct effect of COVID on workforce. ("Each dealership, on average, will have to add five service Farm Equipment Mechanics and Service Technicians to meet increased customer demand.") The technician shortage has been worsened by the decrease in post-secondary enrollments. Transportation and logistics are closely tied to the agriculture economy and food supply chain. On the production side, transportation and logistics are vital not only to move products to market, but also to supply production inputs like seed, feed, custom fertilizer and herbicide/insecticide applications.

### PROPOSED SOLUTION

State Fair Community College's Center for Advanced Agriculture and Transportation Technology (CAATT) will expand training programs and certifications that prepare technicians for the agriculture and transportation industries. The Center will provide drive-in classrooms, simulation labs and shop/lab spaces for new and expanded programs in ag mechanics, precision agriculture, transportation logistics, light diesel technology, ASE accredited automotive technology, alternative/future fuels, and material handling equipment/technologies. Transportation and logistics are closely tied to the agriculture economy and food supply chain, both are vital not only to move products to market, but to supply production inputs like seed, feed, custom fertilizer and herbicide/insecticide applications. The success of local industry relies on strong transportation and logistics personnel. In addition, the new Center will support the transportation and logistics needs of area manufacturers (Nucor, Gardner Denver, WireCo, Stanley Black & Decker) and distribution centers (Dollar Tree). The Center will expand SFCC's career training for area high school juniors and seniors and provide students with certification opportunities and a seamless transfer into SFCC's programs for degree completion. As an NC3 Leadership School, SFCC's certifications will be applied across multiple disciplines providing students with flexible, stackable and relevant credentials for high-skill, high-demand occupations.



## State Technical College of Missouri Automotive Technology Expansion

Coordinating Board for Higher Education  
September 14, 2022

### BACKGROUND

A recent report from the Brookings Institution on federal infrastructure investment estimates that an \$80 billion federal program for broadband would directly create 200,000 job-years across 130 occupations, primarily for the installation, maintenance, and repair of the infrastructure. According to the Associated Building Contractors an additional 650,000 skilled workers were needed on top of existing labor market in 2022. Missouri's recently passed FY23 budget has nearly \$1 billion for infrastructure expenditures including broadband, water, and wastewater. The impact of unprecedented investments in infrastructure along with well documented construction labor shortages has everyone asking the question "who will do the work?"

According to the Missouri Workforce 2021 Report, 68% of the employer respondents were experiencing a shortage of skilled applicants. The most severe shortage has been that of skilled trade workers with a 49% shortage of workers in 2019. The shortage increased to 72% in 2021. State Tech's industry partners attest to this shortage. Collectively, State Tech industry partners report a shortage of at least 2500 trained/credentialed employees.

The impact of the shortage of skilled trade workers is profound. Based on the MERIC Employer Survey, the skilled trade workers shortage ranked second in terms of impact on Missouri businesses.

### PROPOSED SOLUTION

Infrastructure Village, a 60k SF residential subdivision comprised of six homes, will be constructed on the State Tech campus. Each will have functional broadband, water, gas, sewer, and electric. This will be the first comprehensive infrastructure village outside of the largest utility construction company in the US, Quanta. This extremely unique project will assist in recruiting and educating students in a number of skilled trades.

On the Infrastructure Village premises, students and contractors will acquire a broad spectrum of competencies. Electrical Distribution Systems and Utility System Technician students and contractors will learn utility locates, hazards excavation, and utility installation. They will demonstrate the ability to install, repair, and remove overhead and underground communication (broadband) conductors. Students from the HVAC, Electrical Technology, and Facilities Operations and Management programs will be able to install entire HVAC, plumbing, electrical, and alternative energy systems. In addition, the opportunity to earn several industry (e.g., MO One Call, OSHA) credentials related to the above-mentioned systems, compliance and legal considerations, damage investigation, locator, and prevention will be availed by this build.

MoExcels funding would double State Tech's instructional capacity for the grant's targeted programs. This would produce more than 1100 trained/credentialed skilled trade employees.



# University of Central Missouri Construction Management & Safety Sciences Lab Renovation

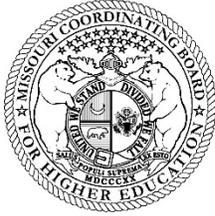
Coordinating Board for Higher Education  
September 14, 2022

## **BACKGROUND**

The construction industry is a high-demand market, and the increased number of building projects contributes to the challenges with supply and demand. Due to its hazardous nature, there is an increased need to incorporate safety principles during the educational and training curriculum for this program. The demand for the construction workforce coupled with the need for the integration of safety principles creates an opportunity for the Construction Management and Safety Programs at the University of Central Missouri to collaborate in an interdisciplinary space. Currently, these two programs are housed separately due to space limitations which creates silos. This renovation project will allow for the creation of a collaborative space which would allow students in both programs to work together, thereby learning the principles of their respective disciplines. This interdisciplinary approach will provide insight into their future work environment and breakdown silos, ultimately preparing them for entry into workforce.

## **PROPOSED SOLUTION**

The proposed solution is to renovate spaces within the TR Gaines building. This would create an interdisciplinary space that would allow students to practice construction worksite health and safety practices in accordance with legislation and regulations; and how to review building plans and complete work in compliance with contractual obligations, codes, applicable laws, bylaws, standards and ethical practices. Coursework will also include sustainability practices, fall and risk prevention, tool safety, and design ergonomics. This collaborative space would prepare students for construction management fundamentals, safety practicums, OSHA training, and Lean Six Sigma certification.



## University of Missouri – Columbia Enhancing Future Dairy Farmworkers

Coordinating Board for Higher Education  
September 14, 2022

### BACKGROUND

Through employer survey responses, MU Extension and the Missouri Agricultural Foundation conducted a workforce needs assessment to understand potential challenges within Missouri's food, agriculture, and forestry industry. The results, published in 2020, are summarized in the Missouri Food, Agriculture and Forestry Workforce Needs Assessment. In summary, this report acknowledges that the global demand for food will continue to rise and that the State of Missouri has an ambitious goal of doubling its agricultural production over the next 30 years. Many of the workforce jobs needed to support this goal require workers with extensive training and experience. This includes the dairy products commodities and veterinary assistance. The survey responses indicated that one of the biggest challenges facing production agriculture is a general lack of farm and veterinary laborers. At the same time, the survey acknowledged that larger dairy operations require staffing 24/7/365 and tend to milk three times a day. To meet production expectations, the workforce of tomorrow will need to be current with industry technologies and their applications. Application and exposure to new technologies, and hands-on opportunities to understand their role in production, are needed to support tomorrow's dairy workforce and veterinary support.

### PROPOSED SOLUTION

Integrating technology with production at the MU Foremost Dairy farm will equip our MU Animal Science (AS) and MU Veterinary Medicine (VM) graduates to lead in the world of animal management that emphasizes health and welfare of animals and people. New technology that will equip MU students: (1) Select Sires Cow Manager ear tag system that provides accurate information about herd fertility, health, nutrition, and location around the clock; (2) FutureCow teatscrubber: teat scrubber speeds up cow prep process, throughput, and milk-out times, while making parlor more consistent and efficient. Supports a drop in somatic cell count and new mastitis cases; (3) Lely Juno Automatic Feed Pusher - provides fresh feed to cows around the clock and while increasing milk production, also saves time and labor; (4) Luna Cow Brush - improves blood circulation and cleans cows' skin. Classes in AS: (1) AN\_SCI 4976 - Dairy Production; (2) AN\_SCI 4010 - Pasture-Based Dairy Management; (3) AN\_SCI 4384 - Reproductive Management; (4) AN\_SCI 4437 - Stress Physiology. Classes in VM Theriogenology (reproduction) and Food Animal are attended weekly at the Dairy. New technology enhances existing classes taught at the Dairy and develops a workforce that understands new industry adaptations.



## University of Missouri – Columbia Industry 4.0 Laboratory Development and Certification

Coordinating Board for Higher Education  
September 14, 2022

### BACKGROUND

Over the past five years there has been a major shift in where manufacturing companies are focusing on locating production. Instead of looking for low-cost, off-shore production alternatives, Missouri companies are looking at how to “reshore” production. The recent COVID pandemic has accelerated these efforts as supply chains proved to not be sufficiently resilient to meet the demands placed upon them. However, the manufacturing jobs that will be returning to Missouri will not be like those in the past. Rather, they will require a higher level of technical proficiency and ability to both design and operate integrated cyber-physical systems that are representative of what is termed “Industry 4.0”. These systems integrate artificial intelligence, additive manufacturing, robotics, data analytics / simulation, pervasive sensors/Internet of Things, and connection throughout the supply chain. The manufacturing professional of today needs a new skill set in order to successfully navigate the new production environment. Quality training and education can be provided without obtaining another degree, but rather augmenting current engineering degree programs and by providing stand-alone certification.

### PROPOSED SOLUTION

Through MoExcels, MU will create a new teaching laboratory that integrates information (cyber security, big data, cloud computing, blockchain) and cyber-physical manufacturing (sensors/IoT, additive manufacturing, advanced materials, robotics, collaborative bots, autonomous material flow, digital twins) to support the breadth of topics necessary for Industry 4.0 implementation. The lab will contain an integrated system of robots, material flow, traditional and additive manufacturing processes, computer-controlled inspection, a wide range of process sensors – all integrated via a computer network. The lab will enable students to design, implement and test a wide range of Industry 4.0 enabled system configurations. An undergraduate certificate in “Industry 4.0” will be developed for MU engineering students in Electrical Engineering, Industrial & Manufacturing Systems Engineering, and Mechanical & Aerospace Engineering. In addition, an Industry 4.0 certificate will also be offered as a stand-alone certification for working professionals in Missouri. MU will partner with regional manufactures to ensure that the curriculum meets their demands in both the near and long-term. MU’s current engineering programs are comprised of a 20.3% URM population, this is compared to 48.6% URM population in Missouri. Recruiting efforts will specifically focus on addressing this disparity.



## University of Missouri – Kansas City Student Career Pathways Expansion

Coordinating Board for Higher Education  
September 14, 2022

### BACKGROUND

UMKC seeks to be responsive to the needs of students historically underserved by higher education and address existing equity gaps, particularly in access, retention and persistence rates, and graduation rates. Making every effort to be in line with national student success trends includes focusing on the expansion of more holistic student services and the recognition of the importance of career development and outcomes. This is particularly salient for the population identified for this funding, our underserved students, who need this extra assistance to help them complete academic degrees and achieve good paying jobs in high demand professions. Both the Professional Career Escalators Program (approximately 100 students in the first FS22 cohort) and existing mentoring and support programs\* are well poised to implement this level of assistance for the target population. Our mission to prepare needed future leaders who will fuel economic development in Missouri will be furthered by expanding our Student Career Pathways initiatives, which received MDHEWD MoExcels funding last year.

\*First Gen Roo Scholars (n=110, <https://www.umkc.edu/asm/first-gen-roo/>), AACE (n=88, <https://info.umkc.edu/multiculturalstudentaffairs/aace/>), Avanzando (n=147, <https://info.umkc.edu/multiculturalstudentaffairs/avanzando/>), Summer Bridge (n=40, <https://www.umkc.edu/asm/summer-bridge-scholars/index.html>), KC Scholars (approximately 500, <https://kcscholars.org>)

### PROPOSED SOLUTION

Our solution builds on last year's grant in terms of the expansion of UMKC Career Services and the growth of our Professional Career Escalators Program. Built on research and best practices that support goals to increase retention and graduation rates of underrepresented, first-generation, and Pell-eligible students, this initiative includes a system of personalized support and services to propel students from their academic studies to good-paying careers. It is designed to engineer the college experience to support career attainment, build the supply of professionals needed to meet workforce demands, and transform lives. We will create a paid, on-campus internship program, hold an Early Talent Summit, and continue our phased plan to redesign and renovate existing spaces and support necessary technology platforms. Staff professional development will assist in staying current, particularly around the provision of services to this population. We will continue to market and hold events to expand the Escalator Program and add a high school cohort that capitalizes on new community partnerships. We will launch a Career Faculty Fellows program to engage 15 faculty in career development work in their courses and offer 43 students the opportunity to participate in the GlobalMindED Conference and First Gen Student Leadership Program (<https://globalminded.org/annual-conference/first-gen-student-leadership-program/>).



## **University of Missouri – St. Louis Center for Behavioral Health Practice-based Learning**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

Almost every state faces a significant lack of accredited mental health professionals. Projections made prior to the pandemic predicted that by 2025, the workforce of mental health providers will fall short of projected need by over 250,000 positions. Within Missouri, 85% of our counties are identified as Mental Health Professions Shortage Areas. These shortages are exacerbated by the increased levels of stress and anxiety facing our population subsequent to the COVID-19 pandemic. The Kaiser Family Foundation (2021) estimates that Missouri residents experienced a greater need for mental healthcare for anxiety and depression than the US average following the pandemic. Family stress has also increased sharply; parents are reporting more child behavior problems and are nine times more likely to report not coping well with the demands of parenting. Taken together, these factors have contributed to an unprecedented surge in mental health crises, substance misuse, child abuse and neglect and their associated costs. The surge in need, coupled with the pre-existing workforce shortages is compounded by the mental health field being one of the sectors hardest hit by the dramatic rise in resignations. Finally, training programs aimed at educating the behavioral health workforce simply cannot keep pace with demand.

### **PROPOSED SOLUTION**

The proposed Center enhances UMSL's recently approved credential, the BA in Applied Psychology in Child Advocacy Studies (AP-CAST), and its pre-existing Certificate and Minor credentials. These credentials address the critical gap in preparing Missouri's workforce to effectively engage with and intervene on behalf of children and families. Through experiential and skill based learning such as virtual reality exercises and problem based learning simulations, these applied credentials prepare students to fill roles in multiple service sectors such as healthcare, education, childcare, child protection, and juvenile justice. This workforce will serve to strengthen the foundation of mental health prevention and intervention services across Missouri thus reducing the social and fiscal costs of this crisis. This proposal leverages our collaboration with UMSL's Missouri Academy for Child Trauma Studies, which has a strong track record for delivering professional development training in trauma informed models and practices. The renovations to existing UMSL space will create shared "HyFlex" interactive instructional and breakout rooms with skill building practice spaces capable of bringing campus based and virtual learners from rural Missouri together for hybrid learning experiences. Regardless of proximity to campus, learners will have more equitable access to these credentials thus reducing barriers to joining the workforce.



## **University of Missouri – St. Louis Center of Excellence in Controlled Environment Agriculture**

Coordinating Board for Higher Education  
September 14, 2022

### **BACKGROUND**

Global population growth, strains on natural resources, loss of arable land, consumer preference for local food, and climate shifts increase the need for sustainable agricultural practices. Urban and rural areas need to address food deserts and economic development in high poverty communities. Food production that is environmentally sustainable, scalable, closer to consumers and that creates greater economic opportunity for businesses and workers is needed throughout Missouri. Controlled environment agriculture (CEA) allows for greater food production with fewer and more precise use of resources, allows for longer and more consistent production cycles, and can be implemented in many different community settings and at different production scales. Evidence of growth in this sector is seen by Aerofarms 150,000 sq ft facility being built in St. Louis. However, the workforce to support this growing industry is under developed to support growth in the Missouri ag-tech industry. Business development for entrepreneurs seeking to begin a controlled environment agriculture company is also needed to advance this industry in Missouri and make sure underrepresented founders and students have the needed supports and training to succeed in establishing firms in this growing market.

### **PROPOSED SOLUTION**

The University of Missouri-St. Louis in partnership with University of Missouri Extension and the College of Agriculture, Food, and Natural Resources, the Yield Lab Institute, the Donald Danforth Plant Science Center and community and industry partners in the St. Louis region propose the creation of a Center of Excellence in Controlled Environment Agriculture (CEA). The proposed center will test, pilot, and experiment with different growing systems, genetics, technologies, innovations, and solutions. It will partner globally with academic institutions and research organizations in the public, private and nonprofit sectors. It will support startups as well as established enterprises. It will be a place that develops the workforce to support this new burgeoning industry. It will seek ways that CEA can contribute to greater food access and security. As an early step in standing up the Center of Excellence, the university and partners will develop and scale workforce training across areas such as master gardener, indoor growing technician roles, specialty crop production, and more. A second area of training to be created in this initial phase of work will be in business development - management of indoor growing facilities, supply chain, and financial sustainability models.