



## How can community colleges support innovative research while training the next generation of STEM students?

Dr Antwan Daniels and Dr Tammie May

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# How can community colleges support innovative research while training the next generation of STEM students?

Community colleges in the US train millions of students every year, but their capacity for engaging in research is often overlooked. At **Metropolitan Community College, Kansas City** in the US, **Professor Antwan Daniels** and **Dr Tammie May** are hoping to change this. Using funding from the EPIIC grant, they are building the college's capacity to manage externally funded research, grow industry partnerships and connect students with STEM professionals and entrepreneurs.



**Professor Antwan Daniels**

Professor of Chemistry and Education;  
Principal Investigator



**Dr Tammie May**

Vice President of Instruction and Student  
Services; Co-Principal Investigator

Metropolitan Community College, Kansas City,  
USA

## Field of research

STEM education

## Funder

US National Science Foundation (NSF)  
EPIIC grant

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Talk like a ...

## STEM educator

**Asset mapping** – a highly structured, strategic method used to help an institution identify and catalogue their strengths and resources

**Community college** – a two-year public institution of education that offers affordable undergraduate education and workforce training

**STEM** – science, technology, engineering and mathematics

While studying at community college or university, students can take part in scientific research. While universities tend to focus their efforts on producing this research, community colleges prioritise student learning and development. Unfortunately, this framing means that their research capabilities are often overlooked.

At Metropolitan Community College, Kansas City (MCC), Professor Antwan Daniels and Dr Tammie May have secured funding to improve the institution's ability to produce innovative research, collaborate with industry partners and provide its students with hands-on learning experiences. "The grant we received has a big focus on emerging research institutions," says Antwan.

"Community colleges need to be seen for the value we have in this respect – we need to be seen and valued for our work."

## The EPIIC grant

In partnership with Lawrence Technical University and the University of Puerto Rico – Bayamon, MCC has won funding from the US National Science Foundation's EPIIC grant. This award is designed to help higher education institutions build research capacity and collaborate with industry partners. The three institutions will work together to create new opportunities for staff, students and industry partners to conduct research that benefits local communities and solves real-world challenges.

In the US, more than 8.5 million students attend community colleges each year – that's about 40% of all undergraduate students in the country. These colleges provide affordable, local education and help students gain the skills and experiences they need to find jobs or move on to university.



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“Science is collaborative and exists within a world that also includes politics, industry, community, and so many other players,” says Antwan. “We can’t function if we stay in our own silos; we have to collaborate with others if we want our work to have an impact.” The EPIIC grant will help MCC build partnerships that allow staff and their students to pursue research that will make a real difference to local communities and national industries.

“I’m a sociologist by training, and we often talk about human communities as an organism,” says Dr Tammie May, Vice President of Instruction and Student Services at MCC. “This idea holds true for the STEM community as well. We are part of an organism and the whole system has to be communicating and supporting itself in order to work.” Like all organisms, the STEM community is complex and multi-faceted. The first step towards effective collaboration is understanding what all the constituent parts can offer, and how they can combine and support each other.

### Asset mapping

Asset mapping is a highly structured, strategic method that an institution can use to shift its mindset from “What do we lack?” to “What do we have to offer?” With this mindset, MCC can form partnerships with other institutions from a position of strength. “The asset mapping process brings people together to think about their place in the wider STEM ecosystem,” explains Antwan.

Using this method, the team at MCC are identifying and cataloguing the strengths within the college. This could be researchers

and teachers with niche skills, industry experience or connections to community groups, or physical assets like chemistry labs or event spaces that could be used by local groups and businesses.

At the same time, the team is looking outside of the college to find potential collaborators. These could be local businesses in the STEM sector, community groups looking for research support or entrepreneurs that are using innovative science to solve problems. Creating these partnerships will transform MCC from an isolated educational institution into an active player in the regional economic ecosystem. “The asset mapping process has really allowed us to build relationships at different levels and better understand how we fit into the bigger picture,” says Tammie.

### STEMinars

Another way in which the MCC team connect their teaching and research to the outside world is through STEMinars. These interactive events bring students face-to-face with scientists and entrepreneurs from outside of their own institution as they learn about and discuss STEM topics. For example, at a STEMinar in April 2026, Dr Brittany Hufft-Martinez from the University of Kansas Medical Center shared her research on cleft palate formation, while other researchers discussed Lyme disease and tuberculosis.

“Through the STEMinars, we can reach out to external partners and bring new people in to allow our students to explore topics and viewpoints from outside the regular curriculum,” explains Antwan. “I’m a

chemist, so I talk about chemistry, but other contributors can talk about issues like cleft palates, Lyme disease and agentic artificial intelligence from different lenses, showing us the different parts of our STEM community.”

For example, Dr Ladrian Brown, a professor of biology, and Joel Shaw, a computer science instructor, take part in the STEMinars and provide students with different ways of thinking about problems. Exposing students to diverse scientific perspectives and cutting-edge research helps them cultivate a true scientific mindset that embraces interdisciplinary collaboration.

### The STEM ecosystem

Innovative research doesn’t just rely on collaboration between different scientific disciplines, but also between people with many different skillsets and expertise. “For example, we have an accountant, and we couldn’t do our work without him,” says Antwan. “If we’re out of line with the budget, that could ultimately lead to our funding being cut.”

“I think it’s easy to get caught up in science and think about creating the magic pill or winning the Nobel Prize,” Antwan continues. “But there are a million smaller prizes to be won before the Nobel Prize; a million smaller things need to take place to get to the ‘finish line’.” Behind every scientific breakthrough and every prestigious award is a vast ecosystem of people playing their part. Finding your place within this ecosystem – whether you become a researcher, an entrepreneur or an accountant – will allow you to contribute to innovative research that could change lives.

# About STEM

**P**ursuing a career in STEM will bring you opportunities to explore your interests, solve meaningful problems and work with incredible people. Being able to collaborate with researchers from different fields, entrepreneurs from industry partners and members of the wider STEM community is key to success.

“You have to be able to operate in multiple worlds,” says Antwan. “And that means making the effort to understand them and to be a good listener.” This desire to learn and understand others is an important part of scientific curiosity. “You have to have that child-like desire to question things and say ‘I don’t understand this yet, but I want to know more’,” continues Antwan. “That willingness to learn new things should never stop.”

Tammie emphasises that it’s not just important to understand other researchers and their scientific disciplines,

but also to understand how the scientific community works as a whole. “The science community is very complex, and there are many external factors that can affect funding opportunities, from local politics to the global economy,” she says. “These limiting factors exist, but that shouldn’t stop you from dreaming – you just have to learn how to navigate the system and find support for your projects and ideas.”

Getting to grips with this complexity at the start of your career will set you up well to navigate any challenges that you might face. Taking part in events such as STEMinars and getting hands-on experience in research groups is a great place to start. “Experiences like these have changed the trajectory for so many of our students,” says Tammie. “It’s all about building relationships that might lead you into future experiences that you haven’t even thought of yet!”

## Pathway from school to STEM

Build a solid foundation in biology, chemistry, physics and mathematics. Spot the topics that excite you and follow your curiosity wherever it leads.

Seek out hands-on opportunities to get experience with research. Join a science club or get in touch with a local research lab.

Look for points of connection between the STEM topics that you study. Science is becoming increasingly interdisciplinary, so being able to bridge the gap between subjects will help you see things from different perspectives.

Take part in one of MCC’s College for Kids programmes, designed to give 8-to-15-year-olds new experiences and teach them important skills: [mcckc.edu/continuing-education/college-4-kids.aspx](https://mcckc.edu/continuing-education/college-4-kids.aspx)

## Explore careers in STEM

Read some other Futurum Careers resources to see the incredible variety of possible STEM careers: [futurumcareers.com/articles](https://futurumcareers.com/articles)

Explore the range of STEM courses available at MCC: [mcckc.edu/pathways/science-technology-engineering-mathematics.aspx](https://mcckc.edu/pathways/science-technology-engineering-mathematics.aspx)

Use the CareerXplorer platform to find out more about different careers in STEM and the pathways that can lead you to them: [careerexplorer.labxchange.org](https://careerexplorer.labxchange.org)





**Meet** *Antwan*

**In the early stages of becoming a medicinal chemist**, I tried to make a molecule that would reduce a person's addiction to cocaine. Later, I tried to kill tuberculosis! When you have big dreams, they don't always work out – but having that passion drives you forward.

**I love bringing people together from different mindsets so they can think**

**together, dream together and make great things happen.** The only thing I love more than chemistry is people, so I want to bring people together.

**As scientists, we don't go through it**, we grow through it. The things that challenge us help us grow and come back stronger. You've just got to keep picking yourself back up and getting back in the lab.



**Meet** *Tammie*

**I enjoy creating opportunities** not just for students and staff, but also for our communities.

**The key is being persistent.** Some people

will celebrate you and support your work, but others won't. Sometimes that is powerful because they push you harder. If this is truly the passion of your heart, you'll dig deeper and learn more deeply.



**Meet** *Joel Shaw*

Computer Science Instructor

**I wanted to take part in the EPIIC grant because of the opportunity to gain different perspectives** from colleagues I admire in different fields, and to share perspectives on my own field.

**I love working with students**, overcoming challenges and thinking about future possibilities.

**If you want to work in STEM**, give yourself grace and time, and learn to be resilient during your educational journey.



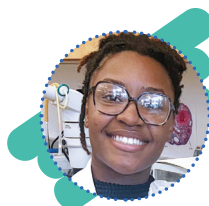
**Meet** *Dr Ladrian Brown*

Professor of Biology

**One of the most rewarding aspects of teaching** is the moment when students connect the concepts they're learning in the classroom and their own lived experiences. It is gratifying to watch learners develop the knowledge and skills they need to become successful.

**It can be difficult to determine which STEM** career is the best fit for you.

Getting early exposure to a range of different fields is key. When making your decision, try not to limit yourself to traditional fields. Instead, explore other exciting roles that will allow for life-long learning.



**Meet** *Corinthian Evrin*

Pupil at MCC

**I took part in a summer research initiative at Kansas University Medical Center** exploring questions around female fertility and reproduction. I wanted to understand more about the science behind reproductive health rather than only learning about it from a classroom perspective.

**I got to see biology in a way that I had never**

**experienced in a classroom.** You can learn about cells from a textbook, but seeing them through a microscope makes everything feel more real.

**I started to understand that research is curiosity in action.** Instead of simply being given a problem with a known answer, I had to think through what I was seeing, consider different possibilities and figure out what questions needed to be asked next.

# STEM

with Professor Antwan Daniels  
and Dr Tammie May

## Talking points

### Knowledge

1. What percentage of US undergraduate students attend community colleges?
2. What topics were discussed in the STEMinar hosted in April 2026?

### Comprehension

3. What is asset mapping and why is the team at Metropolitan Community College, Kansas City (MCC) using it?
4. Why are community colleges' research capabilities often overlooked, and how is the EPIIC grant hoping to change this?

### Application

5. If you were starting a science club at your school, how could you use asset mapping to identify its strengths?
6. Based on the advice in the team's article, what steps could you take to get involved in STEM research?

### Analysis

7. How do non-scientific roles such as accountants contribute to successful scientific research?
8. Why does Antwan believe that collaboration across disciplines and industries is so vital to the STEM ecosystem?

### Evaluation

9. Which piece of advice from the article resonated most with you? How might it help you succeed in a STEM career?
10. To what extent do you think a successful career in STEM relies on good team work, and why?

## Activities

### Map your own assets

The team at MCC uses asset mapping to shift their thinking from "What do we lack?" to "What do we have to offer?" This process helps them identify their strengths – like skilled staff, lab facilities or community connections – so they can build partnerships from a position of confidence rather than need.

Your task is to apply this same thinking to yourself. Imagine you're preparing to join a STEM project, research group or career path. What 'assets' could you bring? Consider the following:

**Skills:** What are you good at – technical abilities, problem-solving, communication, organisation?

**Interests:** What STEM topics or questions genuinely excite you?

**Connections:** Do you know anyone – teachers, family, community groups – who could support or collaborate with you?

**Resources:** What tools, technology or opportunities do you already have access to?

Write a short personal asset map (150–250 words) listing at least four assets across these categories, then explain how you could use one of them to start or contribute to a STEM project.

### Create your own STEMinar

Imagine you've been asked to organise a STEMinar for your own school or college – an interactive event that brings students face-to-face with scientists, researchers and entrepreneurs to explore STEM topics beyond the regular curriculum, just like the events run by the team at MCC. Your task is to design your own STEMinar from scratch.

### Consider the following:

**Topics:** What STEM subjects or real-world issues would you want to explore? Think about areas that excite you, affect your community or connect different fields.

**Speakers:** Who would you invite to talk about these topics? They could be scientists, doctors, entrepreneurs, engineers or even local professionals with relevant experience.

**Purpose:** Why have you chosen these topics and speakers? How would they benefit students at your school?

Write a short plan (150–250 words) outlining your STEMinar, including at least two topics, two potential speakers and a brief explanation of why your choices would inspire and inform your fellow students. When you're done, consider how you could make your proposed STEMinar actually happen!

## More resources

- Learn more about the US National Science Foundation EPIIC grant: [nsf-epiic.org](https://nsf-epiic.org)
- Listen to Antwan talking about chemistry education: [youtube.com/watch?v=6mkVHjkVqGk&feature=youtu.be](https://youtube.com/watch?v=6mkVHjkVqGk&feature=youtu.be)



## Photo montage

**Top:** Corinthian working in Dr Lane Christiansen's lab at KU Medical Center.

**Middle row: Left:** An online student posing with Ladrian at Passport Around the World 2025 MCC-Maple Woods.

**Centre:** Antwan presenting at a STEMinar.

**Right:** Professor Joel Shaw leading a STEMinar on machine learning and agentic AI.

**Bottom:** Ladrian welcoming students to the STEM Space Pizza with Professionals. Students engaged with multiple STEM faculty and industry professionals in fields such as engineering and dentistry.

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