



Discover Your Future

# STEM ACADEMY



PROJECT LEAD THE WAY

# PLTW





## THE MERIDIAN TECHNOLOGY CENTER STEM ACADEMY

The Meridian Technology Center STEM Academy is dedicated to teaching students science, technology, engineering and mathematics principles. STEM Academy programs are an education like no other. These are not your traditional classrooms. They are a place where students can ask questions and imagine possibilities.

We have partnered with Project Lead the Way (PLTW), a national program that provides transformative learning experiences for students and teachers across the country, to develop the STEM Academy. PLTW focuses on developing problem-solving skills by immersing students in real-world preparatory-level academics and is designed to prepare students for postsecondary studies.

The STEM Academy serves high school sophomores, juniors and seniors. In addition to the Meridian application, an additional application is required for the STEM Academy. Entrance requirements include an application and interview process with career counselors. Students must be at or above grade level in reading and mathematics and demonstrate a high interest and/or aptitude in math and science. Applicants must have completed Algebra I with a grade of B or better. Candidates should have passed eighth-grade state tests in reading and mathematics and have a minimum 3.0 GPA.

Students in the STEM Academy will earn their high school math and science credits at Meridian. Many courses qualify students to take Advanced Placement (AP) exams for college credit. When students enroll in the STEM Academy as a sophomore, they have an opportunity to take additional courses.

Meridian Technology Center's STEM Academy was named a 2017-2018 PLTW Distinguished School. This award is designed to recognize schools that are committed to increasing student access, engagement and achievement in their PLTW programs.



Students from the Agra, Carney, Glencoe, Guthrie, Morrison, Mulhall-Orlando, Pawnee, Perkins-Tryon, Perry and Stillwater school districts can attend Tech tuition free. Students attend either a morning or afternoon session. Classes held during the morning session are from 7:50 – 10:40 and the afternoon classes are from 12:45 – 3:35.

Priority enrollment is February 1. Applications will be accepted after this date as long as space is available. Throughout February and March, Meridian's Career Counselors will meet with students to interview them about their interest in attending Tech, why they want to be in a particular program and their career goals. Admission decisions are made in March.



# BIOMEDICAL SCIENCES

Put your critical thinking skills to the test in Biomedical Sciences! Whether you're investigating a potential crime scene, offering medical advice to a fictitious family, monitoring muscle movement or evaluating cancer treatment options, this program brings science to life through human medicine, physiology, genetics, microbiology and public health.

Students examine the structures and interactions of human body systems and explore the prevention, diagnosis and treatment of disease, all while working collaboratively to understand and design solutions to the most pressing health challenges of today and the future.

## THE CURRICULUM

The college preparatory Project Lead the Way curriculum introduces students to the human body, cell biology, genetics, disease and other biomedical topics in a sequence of four courses. Students are exposed to a diverse curriculum with a strong math and science foundation to better equip them for success in a science-related major at the university level. When students enter the Biomedical Sciences STEM Academy as a sophomore they are able to take additional elective courses. Healthcare Provider and CPR certifications are built into this program.



## Principles of Biomedical Science

Engage in activities like dissecting a sheep heart and explore concepts of biology and medicine to determine factors that led to the death of a fictitious person.



## Human Body Systems

Determine the identity of a skeleton using both forensic anthropology and DNA analysis. Examine the interactions of human body systems and solve real-world medical cases.



## Medical Interventions

Delve into activities like designing a prosthetic arm and follow the life of a fictitious family while investigating how to prevent, diagnose and treat disease.



## Biomedical Innovation

Build on the knowledge and skills gained from previous courses to design innovative solutions for the most pressing health challenges of the 21st century.

Enroll as a sophomore and take these additional courses!



## Computer Science Principles

Develop computational thinking skills and tackle challenges like designing apps to solve problems for clients.



## Environmental Sustainability

Investigate and design solutions for clean and abundant drinking water, food supply and renewable energy.

Depending on their high school, students may get academic credit in:

Algebra II | Trigonometry/Pre-Calculus | Anatomy and Physiology | AP Statistics | Pre-AP Chemistry

Additional courses available on request include:

AP Biology | AP Chemistry | AP Calculus AB | AP Calculus BC

## CAREER OPTIONS

Biochemist and Biophysicist, Bioinformatics Scientist, Biological Scientist, Biological Technician, Biostatistician, Chemist, Dentist, Epidemiologist, Family and General Practitioner, Geneticist, Life Scientist, Medical Scientist, Microbiologist, Molecular and Cellular Biologist, Therapist, Veterinarian



# PRE-ENGINEERING

Push the limits of your imagination in the Pre-Engineering Academy! Students in this program explore civil, chemical, mechanical and aerospace engineering. Collaboration is key in this program and students will often have an opportunity to work with students in other Meridian programs to create new products and improve the world around them. From programming robots and building airplanes, to fixing critical infrastructure issues and designing circuits, students learn by doing.

## THE CURRICULUM

The college preparatory Project Lead the Way curriculum introduces students to interdisciplinary activities like working with a client to design a home, programming electronic devices or robotic arms, or exploring algae as a biofuel source. These activities not only build knowledge and skills in engineering, but also empower students to develop essential skills such as problem solving, critical and creative thinking, communication, collaboration and perseverance. Students are exposed to a diverse curriculum with a strong math and science foundation to better equip them for success in an engineering-related major at the university level.



### Introduction to Engineering Design\*

Dig deep into the engineering design process, applying math, science and engineering standards to hands-on projects like designing a new toy or improving an existing product.



### Principles of Engineering\*

Explore a broad range of engineering topics including mechanisms, strength of structure and materials, and automation, and then take on challenges like designing a self-powered car.



### Aerospace Engineering

Navigate the physics of flight and bring what you're learning to life through hands-on projects like designing a glider and creating a program for an autonomous space rover.



### Civil Engineering and Architecture

Learn important aspects of building and site design and development, and then design a commercial building.



### Computer Science Principles

Develop computational-thinking skills and tackle challenges like designing apps to solve problems for clients.



### Digital Electronics

Explore the foundations of computing by engaging in circuit design processes to create combinational logic and sequential logic (memory) as electrical engineers do in industry.



### Environmental Sustainability

Investigate and design solutions for clean and abundant drinking water, food supply and renewable energy.



### Engineering Design and Development\*

Identify a real-world challenge and then research, design and test a solution, ultimately presenting your unique solution to an audience. This is the capstone course.

\*Required courses

*Depending on their high school, students may get academic credit in:*

*Algebra II | Trigonometry/Pre-Calculus | AP Calculus | AP Physics | Pre-AP Chemistry | AP Chemistry*

*Additional courses are based on a student's area of interest. Enroll as a junior and choose one additional PLTW course. Begin as sophomore and select three additional engineering courses. These courses may count as electives at your high school. Contact your high school counselor for additional information.*

## CAREER OPTIONS

Aerospace Engineer, Agricultural Engineer, Automotive Engineer, Biomedical Engineer, Chemical Engineer, Civil Engineer, Computer Engineer, Drafting and Design Engineer, Electrical Engineer, Environmental Engineer, Mechanical Engineer, Software Engineer

STEM Academy applications can be found at [meridiantech.edu/preengineering](http://meridiantech.edu/preengineering) and [meridiantech.edu/biomedicalsciences](http://meridiantech.edu/biomedicalsciences).  
For more information visit [meridiantech.edu/enrollment](http://meridiantech.edu/enrollment).

Contact the Career Planning Center at [cpc@meridiantech.edu](mailto:cpc@meridiantech.edu) or call 405.377.3333 for more information.

Meridian Technology Center will not discriminate in its programs, services, activities or employment because of race, color, sex, pregnancy, gender, gender expression or identity, national origin, religion, disability, veteran status, sexual orientation, age, or genetic information. Inquiries concerning application of this policy may be referred to Jeremy Zwejack, Coordinator of Section 504/ Title II, Title VI, Title IX, and the Age Act, at Meridian Technology Center, 1312 South Sangre Road, Stillwater, Oklahoma, 74074-1899, or by phone at 405.377.3333. Outside assistance may be obtained from the U.S. Department of Education Office for Civil Rights at One Petticoat Lane, 1010 Walnut Street, Suite 320, Kansas City, MO 64106, or by phone at (816) 268-0550, fax at (816) 268-0599 or email at [OCR.KansasCity@ed.gov](mailto:OCR.KansasCity@ed.gov).

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[meridiantech.edu](http://meridiantech.edu) | 405.377.3333 | 1312 S. Sangre Rd | Stillwater, OK 74074