Millard Oakley STEM Center for the Teaching and Learning of Science, Technology, Engineering and Mathematics

Summer 2011 EXPLORATIONS WORKSHOPS FOR 5th – 8th

June/July Catalog
REGISTRATION OPENS: Monday, April 18
Registration Closes: Friday, May 27

LAUNCH YOUR FUTURE
Check out the hands-on workshops offered this summer in the STEM Center’s state-of-the-art laboratory facilities...

Make Rockets, Build a Race Track, Learn About Worms, AND MORE!

For more information contact Christina Hatley, 931-372-6573 or email chatley@tntech.edu.

GENERAL INFORMATION

WORKSHOP FEES
Include: Registration Fee & Workshop Materials/Supplies

ONLINE REGISTRATION | MARKETPLACE
The STEM Center is using an online registration system called MarketPlace. Store links are available in the “Registration Guide” section of the EXPLORATION portion of the STEM website. Accepting: VISA, MasterCard, Discover, American Express & Debit Cards

MarketPlace cannot complete the online registration without a valid card number to complete the transaction.

Parent/Guardians: If you don’t have access to a computer and cannot register online or prefer to pay with a check, please contact Christina Hatley at 931-372-6573 for assistance.

Pre-Registration ONLY; no "walk in" registration available on the day(s) of the workshops.

REGISTRATION CONFIRMATION
• You will receive an automatic confirmation from the MarketPlace system that your registration was received.
• If your workshop does not have the minimum number of participants registered by May 20, you will be contacted to select an appropriate, alternate workshop.

SIGN IN | SIGN OUT
• Sign in is 30 minutes prior to the start of a workshop.
• A parent/guardian must accompany the child/children into the building to sign in.
• At the end of the workshop, parent/guardians must enter the building to sign out the child/children.

EMERGENCY INFORMATION & PHOTO RELEASE FORM
Parents/guardians please print, complete and sign the Emergency Information & Photo Release Form (PDF) from the website and bring with you to sign-in on the day of your child’s/children’s workshop(s).

Please complete the Photo/Video Release section, only if you give the university permission to use your child’s likeness in promotional materials.

SCHEDULES
• Workshops are no longer than 3 hrs per day.
• A.M. Sessions: 8:30-11:30am
• P.M. Sessions: 12:30-3:30pm
• Some workshops are a single 3 hr session on one day; other workshops span 2-4 days (one 3 hr session per day).

LUNCH
Lunch is not provided. If your child is registered for 2 different workshops on the same day (a morning and an afternoon), please prepare a sack lunch. Refrigeration available on-site.

For more information about EXPLORATION Workshops visit the STEM Center’s website.
WORKING WITH WORMS
June 9 (Th) | 8:30-11:30am
$45
Instructor: Mrs. Paige Pointer
Develop at-home conservation habits while focusing on composting through vermiculture (working with worms). Create your own starter worm bed to take home and begin making useful topsoil from what used to be trash! Prerequisite: fear not the worms.

MAKE & RACE A FUEL CELL CAR
June 13 (M) | 8:30-11:30am
$30
Instructor: Dr. Cynthia Rice-York
Explore alternative forms of energy and power systems as you assemble a fuel cell car. Learn how electrolysis produces the fuel required to power its engine. Investigate the effect of charge time on distance and speed while racing against other cars in this class. Prerequisite: none.

MAPPING WILDLIFE IMPACTS: GULF OIL SPILL 2010
June 15-16 (W-Th) | 8:30-11:30am
$60
Instructor: Professor Jason Duke
Learn how professionals collected, processed and used wildlife data to assist with the 2010 BP/Deepwater Horizon Oil Spill in the Gulf of Mexico. Use simulated data with Geographic Information Systems (GIS) software to map and analyze data. Get a brief introduction to Global Positioning Systems (GPS). Prerequisite: basic computer skills.

THE LONGEST DAY OF THE YEAR
June 21 (Tu) | 6-9pm
$30
Instructor: Mr. Marc Robinson
Experience the wonder and majesty of the night sky on the Summer Solstice, the longest day of the year! Explore the mysteries of space, including seasons, planets, and more. As the night darkens we will move outside to observe the stars by telescope, hoping to answer our questions about the final frontier. Prerequisite: none.

NOTE: Each registered child may bring one parent/guardian at no charge.

TAKE FLIGHT: MAKE A ROCKET & MORE!
June 27-29 (M-W) | 8:30-11:30am
$95
Instructor: Dr. Justin Myrick
Experience the wonders of flight when you construct a rocket, airplane and water barometer while learning about basic physics principles such as pressure, buoyancy, and force. Discuss engineering aspects of aircraft design, including helicopters, airplanes and more! Prerequisite: none.

ELECTRONICS & ENGINEERING: BUILD A RADIO, A MOTOR & MORE!
June 27-29 (M-W) | 12:30-3:30pm
$115
Instructor: Dr. Justin Myrick
Create an oat box radio, a circuit, a motor, a battery, and more! Gain experience with analysis and design while building a variety of electronic equipment and components and learning about electrical engineering. Prerequisite: none.
Millard Oakley STEM Center
Summer EXPLORATIONS
July Workshops: 5th-8th

BUILD & LAUNCH YOUR OWN MODEL ROCKET
July 5-7 (Tu-Th) | 12:30-3:30pm
$115
Instructor: Ms. Aubree Johnson
Assemble, decorate, and launch your own model rockets! Learn about basic rocketry principles, such as thrust, through hands-on and visual learning activities. Prerequisite: basic understanding of geometry

BECOME A TTU LICENSED PROTRACTOR THROUGH ABSTRACT ART
July 11 (M) | 8:30-11:30am
$40
Instructor: Ms. Twanelle Majors
Use a protractor and compass to cut geometric figures from a rainbow of colored tissue paper. Gain certification as a Licensed Protractor after completing the prescribed set of shapes. Create a colorful abstract of overlapping geometric shapes and choose a portion for framing. Prerequisite: none

ART OF CHEMISTRY: MAKE YOUR OWN REACTION POSTER
July 13-14 (W-Th) | 8:30-11:30am
$85
Instructor: Ms. Twanelle Majors
Select and perform chemical reactions in a petri dish while viewing and capturing a video of this process through a microscope. Gather still images of brilliant crystals and the changes they undergo during the course of the reaction. Create, edit, and take home a poster of your reaction! Prerequisite: none

THE CHEMISTRY OF MAKE-UP & MORE!
July 18-20 (M-W) | 8:30-11:30am
$105
Instructor: Ms. Twanelle Majors
Design an experiment and create multiple recipes of lip balms and glosses from crayons and emollients. Perform a saponification reaction and chemical tests on a soap product. Use local purified samples of clay or minerals to create your own facial masks, body scrubs, and redness correctors. Prerequisite: none

ROLLER COASTERS, MIRRORS & PHYSICS
July 18-20 (M-W) | 8:30-11:30am
$90
Instructor: Dr. Justin Myrick
Participate in hands-on experiments while learning the physics principles behind roller coasters, lenses, mirrors, and more. Examine energy, mass, distance, and motion. The course will emphasize prediction, analysis, and test. Prerequisite: none

DESIGN & CONSTRUCT: MAKE A BRIDGE, A RACE TRACK, A CATAPULT...
July 18-20 (M-W) | 12:30-3:30pm
$95
Instructor: Dr. Justin Myrick
Design, construct, and test a model bridge, airplane, race track, catapult and more! Discuss the forces and principles that guide the engineering design process. Prerequisite: none

COLLECT, DISSECT, IDENTIFY: BIODIVERSITY IN TENNESSEE’S FORESTS
July 18-20 (M-W) | 8:30-11:30am
$100
Instructor: Mrs. Paige Pointer
Gain an appreciation for the diversity of Tennessee plants and animals. Experience survey collection methods, a dissection, nature identification walks, special guests and more! Prerequisite: none

FIND YOURSELF: GEOGRAPHIC INFORMATION SYSTEMS (GIS) & GLOBAL POSITIONING SYSTEMS (GPS)
July 21-22 (Th-F) | 8:30-11:30am
$60
Instructor: Professor Jason Duke
Learn how Geographic Information Systems and Global Position Systems are used in navigation, mapping and analysis of data and get hands-on experience in data collection and mapping. Also, learn the basics at operating Geographic Information Systems software. Prerequisite: basic computer skills