FUN ACTIVITIES • FRIDAY, FEBRUARY 23, 2018 • 8:20 AM – 3:00 PM

Adventures in Mathematics (AIM), a finalist of the 2015 Tech Titans Award (http://www.techtitans.org/)-the Future University, is an annual event organized by the Department of Mathematics at Texas A&M University-Commerce for high school math teachers and their students. Participants will be involved in hands-on activities in math, listen to talks on math careers, watch planetarium shows, tour campus, and experience a lunch in the student cafeteria. The purpose of AIM is to increase students' interests in learning mathematics and offer teachers examples, methods and stories, which can be used in classrooms. High school teachers may receive a certificate of Continuing Professional Development Units upon request. A registration fee of $3 per participant (including teachers) is required to help cover all activities, refreshments and lunch. High schools are responsible for their own transportations to Commerce, TX.

For AIM, we also organize the Northeast Texas Algebra Competition (NTAC) at the level of algebra II. High school students led by their teachers are eligible to participate. In addition to individual awards, team awards will be given to the top five teams. A team score is determined by the sum of the top four scores of each team. At the end of AIM, competition awards and door prizes will be presented. Fifteen competition winners will receive the following prizes and certifications:

- **First Place: A TI-84, a scholarship of $2,000**
- **Second Place: A scholarship of $1500**
- **Third, Fourth, Fifth Place: A scholarship of $1000**
- **10 Honorable mentions: A scholarship of $500**

To receive the scholarship, a winner must notify the department head of mathematics, and attend Texas A&M University-Commerce as a fulltime math major within three years after graduation from high school. Winners are also encouraged to apply for additional university and math scholarships.

To help us prepare sufficient food and parking permits, please register by Friday, February 9, 2018. Contact Dr. Tingxiu Wang (tingxiu.wang@tamuc.edu, or 903-886-5958) for questions.

Where:	**Sam Rayburn Student Center** **Texas A&M University Commerce** **Commerce, TX 75429**
8:20 AM - 8:50 AM:	**Registration (early registration is appreciated)**
8:50 AM - 9:05 AM:	**Welcome and information (all meet in the Conference Rooms A, B, and C)**
9:05 AM - 10:00 AM:	**Northeast Texas Algebra Competition, breakout sessions, 3D-Printing, planetarium, Campus tour**
10:10AM - 11:00 AM:	**Keynote: Mathematics and Music: Connections and Common Insights by Dr. Stuart Anderson**
11:10 AM - 2:00 PM:	**Lunch, breakout sessions, 3D-printing, planetarium show, campus tour**
2:15 PM - 2:45 PM:	**Competition awards and door prizes (graphing calculators and other gifts) (winners need to be present for door prizes)**

DESCRIPTION OF ACTIVITIES

NORTHEAST TEXAS ALGEBRA COMPETITION (NTAC), 8:50 AM – 10:00 AM

The Northeast Texas Algebra Competition (NTAC) is at the level of algebra II. Each school can have up to 10 students participating in NTAC with two alternates. The alternates may participate if there are extra clickers available. There will be 60 questions and students will have 20 seconds for each question. No pencils, paper or calculators are allowed during the competition. A student will work these questions in his/her head and submit answers with a "clicker." Any alternate who will take the place of a team member must be reported to the NTAC coordinator by 9:00 AM.

Keynote Speaker: Dr. Stuart Anderson

Mathematics and Music: Connections and Common Insights

Starting with the Pythagorean view of music, this talk discusses the areas of overlap between music and mathematics when both are treated as creative disciplines. Also mentioned are a few of the attempts to use mathematics to produce music. The aim of the talk is to highlight some of the behaviors and insights that can lead to success in mathematics.

Dr. Stuart Anderson is a Professor of Mathematics at Texas A&M University-Commerce. He has degrees from the University of North Texas and the University of Oklahoma. His research interests are in geometric topology, dynamical systems, and history of mathematics. With publications in a variety of mathematics journals and music magazines, he has a deep interest in both mathematics and music. He has presented numerous talks about mathematics and has spoken in a wide range of other venues. He also performs regularly in his own band. He has received teaching, service and research awards from organizations such as the Texas A&M System, the Mathematical Association of America, and The Piper Foundation.

FUN ACTIVITIES ● FRIDAY, FEBRUARY 23, 2018 ● 8:20 AM – 3:00 PM

The following activities will be held at the same time for 50 minutes and then repeated if possible.

Activity I: Music to My Ears by Mrs. Donna Holt
Description: What makes a melody most pleasing to our ears? And what patterns of sound develop those melodies? A strong bond exists between musical expression and mathematics, moving from Plato's music of the spheres to periodic sine curves. Join us as we investigate some surprising connections between the two worlds.

Activity II: Composing M&Ms (Math & Magic) Tricks by Mrs. Rebecca Steward and Mr. Adam Bowden
Description: Musical arrangements have connections to mathematical patterns. In our activity, have fun exploring more patterns in the form of magical mathematical tricks. See how everyday objects can be used to demonstrate math and at the same time have fun!

Activity III: 'Jack of All Trades' by Dr. Mehmet Celik
Description: If a person excelled in all fields of a discipline as it existed during his/her lifetime, that person can be described as an Universalist. A person who is a 'jack of all trades, but a master of none' is one not deeply engaged in or concerned with something. This presentation is intended to help students uncover the beauty of mathematics by helping them see how mathematical ideas find their applications in our daily life.

Activity IV: Topologists, Geometers and Surgeons (TGS) by Dr. Ye-Lin Ou
Description: What is Topology? What is Geometry? What is the difference between the two groups of mathematicians who study these subjects? Dr. Ye-Lin Ou will give you some answers through some performances and some conversations among topologists, geometers and surgeons.

Activity V: Student forum led by Mrs. Laura Beene
Description: university students will have a forum about campus life, extracurricular activities, math clubs, Greek life, undergraduate research and career options.

Activity VI: Math Club Activities by Lauren Melcher, Ja'Bria Miles, Laura Perez, and Micalyn DeGuzman Rowe
Description: Math Club members will present creative, interactive and alive math fun activities. Participants will have the opportunity to witness and to experience for themselves the creative aspects of mathematics. Those activities offer a glimpse of the fascination and delight a mathematician may experience in thinking about mathematics.

Activity VII: 3D-Printing by Dr. Perry Moler
Description: In a computer lab, students will learn about 3D-printing, and then select a graph to print. Seating is limited, and admission tickets are required.

Activity VIII: Campus Tour
Description: Touring the campus of Texas A&M University-Commerce can take hours. However, during this 50-minute tour, students will be guided through the central part of the campus and visit the departments of Biology, Chemistry, Engineering and Technology, and Physics.

Activity IX: Planetarium Show, TBA
Description: a title will be elected in January. Seating is limited, and admission tickets are required.