ADVANCING SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM) EDUCATION FOR A MORE COMPETITIVE TEXAS
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Advancing STEM (science, technology, engineering and math) education is a global issue and vital part in keeping Texas competitive. Preparing the next generation of STEM leaders in Texas starts with quality programs, exemplary teaching and pioneering research.

The college is tackling this head on through conducting first-rate teacher preparation, supporting inclusive K-12 engagement opportunities and examining how and why kids pursue STEM interests.

We have a long history of producing quality STEM teachers. Recognizing the need for adaptive educators with practical experience, the college continues to develop new programs and new approaches for the preparation of teachers by incorporating innovative research-based practices into our curriculum.

Our graduates are educators, administrators, policy creators, and researchers in 210 counties, 744 school districts and all 20 regions of the state not to mention our national and international partnerships. We are poised to make a difference and build up Texas classrooms and educational programs so our students can compete on a global scale.

Best,

Joyce Alexander • Dean, College of Education and Human Development
Interest in STEM fields must be nurtured at an early age.

Researchers have found that effective early mathematics education can enhance later learning and narrow achievement gaps.

Only 34% of Grade 4 students achieved a score of “At or Above Proficient” on the science portion of the National Assessment of Educational Progress.

Supporting a diverse STEM workforce leads to innovative ideas.

Let’s close the gap in STEM achievement.

Currently, whites hold 75% of science and engineering degrees and 72% of science and engineering occupations; Asian Americans hold 11% of degrees and 17% of occupations.

In 2012-2013, females received roughly 30% of STEM-related degrees and certificates. In 2011, only 1 in 7 engineers was female.
Schools need passionate subject-area experts...

Let’s create leaders for our changing nation.

9.4% of recipients are African-American

10.4% are Hispanic

11.4% are Asian/Pacific Islander

...to prepare the next generation. In 2013, 44% of high school graduates were ready for college-level math and only 36% were ready for college-level science.

Let’s create more leaders, innovators and thinkers in Texas. In 2012-2013, only 6% of the nation’s master’s and doctoral degrees were awarded in Texas (nearly 56,000 out of over 920,000).
At Texas A&M, it is our goal to make Texas a leader in education by advancing and supporting programs and practices to improve student achievement in P-20 education.

Our graduates are prepared using innovative research-based methods to ensure future STEM educators are subject matter experts. We are also creating continuing opportunities for development and growth of working educators through online programs focused on current issues.

### Our Programs

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<tr>
<th>Program</th>
<th>Master</th>
<th>EdD</th>
<th>PhD</th>
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<tr>
<td>Culture and Curriculum</td>
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<tr>
<td>Elementary Education</td>
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<tr>
<td>English as a Second Language</td>
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<tr>
<td>Generalist</td>
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<tr>
<td>Mathematics Education</td>
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<td>✓</td>
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<tr>
<td>Reading and Language Arts</td>
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<td>✓</td>
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<td>Rural Teacher Leadership</td>
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### Our Certifications

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<th>Master</th>
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<tr>
<td>EC-6 Generalist</td>
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<td>Middle Grades 4-8 Language Arts/Social Studies</td>
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<tr>
<td>Graduate Certification Program</td>
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Preparing Pre-Service Teachers for the Technology-Driven Classroom

Studies show more parents are welcoming technology in the classroom and the majority of Americans believe all K-12 classrooms will be technology rich in the next 10 years. Our faculty are helping prepare pre-service teachers for these classrooms by outlining appropriate methods and applications of technology as they relate to K-12 education.

Dr. Radhika Viruru, clinical professor in early childhood development, is finding pre-service teachers know technology is important in their own lives, but they have a hard time thinking of how to integrate it into their teaching. “I think some of them are apprehensive because that’s not what they thought about when they decided to become a teacher,” said Dr. Viruru.

“We cannot leave kids behind where technology is concerned,” stated Viruru. “There are just so many ways that teaching is now outside the classroom. The opportunities to participate in things that are happening are just exploding and you’ve just got to keep up with them because they expand every day.”

At Texas A&M, we’re helping our teachers be ready to facilitate learning, to think through the consequences of technology integration, regardless of what the future holds.
Within the Department of Teaching, Learning and Culture, we are actively engaged in creating, fostering and advancing opportunities for student achievement across all subjects.

We promote and enable collaborative partnerships to improve urban schools and investigate effective education reform and school governance to inform policy, facilitate decision-making and improve student learning.

### 2015 STATS

**new funding dollars**

- Private • $547,082
- Federal • $2,179,983
- State • $1,076,204

**TOTAL annual budgeted dollars**

$3,803,267.94

65% of faculty have grant funding.
Education Research Center Collaborating to Improve Houston Educational Programs

With help from the College of Education and Human Development, the United Way of Greater Houston (UWGH) is creating and supporting opportunities for students in urban areas like Houston and across the nation.

Reaching more than 350,000 students throughout the city, the UWGH urban education initiative is ambitious to say the least. The UWGH education initiative brings together more than 30 non-profit agencies across Houston to deliver resources to students who need them.

So far, the researchers’ observation of the programs has revealed a number of areas for improvement that UWGH has been working hard to address including data that suggested less than 1% of students were involved in more than one agency program.

“There’s been collaboration between the agencies that has never occurred before,” said Dr. Waxman. “For example, during the summer learning programs, you have several agencies that are collaborating to develop a stronger program. That never occurred until these last two years.”

Entering into Year 4 of the evaluation, the ERC will work with UWGH staff to design and implement the evaluation of the Education Initiative and report on its success. The team will analyze academic achievement and socio-emotional data for students involved in UWGH programs at school and community agencies involved in the initiative.

“This is an exciting project for us,” remarks Dr. Waxman. “We developed partnerships with several large urban school districts and non-profit agencies such as the Houston Area Urban League, Boys & Girls Clubs, YMCA, Children’s Museum of Houston and Project GRAD.”

1,119,584 students are enrolled in public schools in Region 4: Houston

Roughly 30% of these students are served in UWGH programs.
Preparing the Next Generation of STEM Leaders

Since 2006, Aggie STEM, a partnership with the Dwight Look College of Engineering, has created opportunities for interested middle and high school students and teachers in the field to learn more about STEM fields and STEM education.

Aggie STEM Summer Camp provides students with technical and social experiences in STEM education through real-world project-based learning activities and world-class university experiences with Texas A&M professors actively working in STEM fields. These experiences help students develop their problem-solving and teamwork skills as well as providing insight into the STEM disciplines.

Students attend non-credit STEM mini-courses facilitated by Texas A&M professors including robotics, construction engineering, 3D design, cosmetic chemistry, renewable energy, veterinary science, biochemistry, forensics, and PSAT/SAT prep classes. These activities are not only a great way for students to socialize with peers from different backgrounds but also to enhance students’ confidence and develop their peer networks.

Learn more about our many outreach activities in the department at: tlac.tamu.edu/outreach

Aggie STEM’s work has now expanded to reach numerous T-STEM Academies and Texas independent school districts. Its team researches, creates and provides research-based professional development and other services for high-quality, secondary-level STEM teaching and learning.

Mark your calendars!
2016 Aggie STEM Summer Camp is June 19 – July 2 and July 10 – July 23!

Register at aggiestem.tamu.edu
You can make a direct impact on the teaching, research and service activities of our department.

Give now at tx.ag/givecehd

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In education, sport, business, government and health, we work to enhance equity in educational achievement and health outcomes, to foster innovation and development and influence policy and practice.

Our graduates are preparing future leaders, solving many of our social issues and contributing new knowledge to their professional fields.

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