



TEXAS REGIONAL STEM DEGREE ACCELERATOR

STEM PATHWAY:
PETROCHEMICAL

Regional Team Members:

Lee College:

Lead Institution

Houston Community College

Lonestar College

Prairie View A&M

University of Houston Downtown

University of Houston Main

University of Houston Clear Lake

The University of Texas at Tyler

Sam Houston State University

San Jacinto College

Texas A&M University

Aldine ISD

Barbers Hill ISD

Goose Creek ISD

Houston ISD

Pasadena ISD

Spring ISD

Region 4 Education Service Center

Gulfcoast Workforce Board

Greater Houston Partnership

East Harris County

Manufacturers Association

OVERVIEW

About Houston/Gulf Coast: According to research conducted by the Greater Houston Partnership, there are 3.6 million jobs in the Houston region and approximately 1.6 million are middle skills jobs that require credentials beyond a high school diploma, but not necessarily a bachelor's degree.¹ This project builds on existing partnerships, including the Community College Petrochemical Initiative (CCPI), which brings together regional two-year colleges to increase student access and success in fields related to the petrochemical industry. Lee College and three other Gulf Coast community colleges – all of which are Minority Serving Institutions – are collaborating with K-12, four-year, and workforce partners on this project.

Why Petrochemical: In 2014, there were 26,555 middle-skill petrochemical job postings in the region and in the future, an additional 11,000 jobs per year are projected.² On average, 25% of incumbent middle-skill petrochemical employees are 55 or older.³ Therefore, even if 100% of students currently entering petrochemical pathways join the workforce, large numbers of jobs will remain unfilled.

STEM PATHWAY PLAN & INTERVENTIONS

The Houston/Gulf Coast regional team will expand on the CCPI, a partnership between industry and nine regional community colleges, led by Lee College.

MAJOR ACTIVITIES:

- 1. Strengthen and Scale Promising Math Pedagogy:** Among students who do not complete their first math course, only half return the following semester. Conversely, students who complete their first math courses are 1.7 times more likely to earn a degree or certificate.⁴ This project will use the New Mathways Project developed by the Charles A. Dana Center at the University of Texas at Austin to strengthen math curriculum, teaching, and student support.
- 2. Expand Industry Content Expertise of Faculty:** By nature, workforce programs are rapidly changing. To ensure that faculty keep their knowledge current this project will: recruit industry professionals to teaching, develop externships for existing faculty, and support co-teaching between faculty and industry professionals.
- 3. Strengthen and Scale Pathway Alignment Across Educational Sectors:** The regional team inventoried all STEM projects and assets and recognized a need for more purposeful collaboration across programs. The team will develop strategies and models to strengthen alignment and increase enrollment, transfer, and scaling.

PROJECT IMPACT:

This project is anticipated to accomplish the following outcomes:⁵

- **Train** 135 college faculty and 35 high school teachers
- **Serve** 20,000 college students and 150 high school students
- **Produce** 3,400 certificates and 1,700 Associate Degrees in the Petrochemical Pathway

¹Addressing Houston's Middle Skills Jobs Challenge (2014). Greater Houston Partnership. ²Burning Glass. Labor Insight tool, (2014). Custom report for Houston. ³Preparing Houston to Skill Up, Jobs for the Future (2014). ⁴Greater Houston Partnership (2014). CCPI Institutional Data (2015). ⁵Self-Reported Data.



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The Texas Regional STEM Degree Accelerator initiative is developed in alignment with priorities for education and workforce outlined by the Texas Higher Education Coordinating Board and the Texas Workforce Commission. This initiative is funded through the generosity of The Leona M. and Harry B. Helmsley Charitable Trust, The W.W. Caruth, Jr. Foundation, Council for Regional Economic Expansion and Educational Development, Greater Texas Foundation, JPMorgan Chase, and The Kresge Foundation.

BACKGROUND & OVERVIEW

Texas is projected to have approximately 9% of the nation's future STEM opportunities, the second highest in the country.¹ At the same time, the state's rapidly changing demographic mix will pose challenges as Texas's growing, economically disadvantaged, minority students have less than a 10% postsecondary completion rate.² Therefore, the urgency to identify policy and programmatic strategies to meet this need is critical.

The Texas Regional STEM Degree Accelerator (STEM Accelerator) initiative is focused on supporting regional teams of education and workforce partners to increase the number of students who will earn a STEM credential.

PROJECT GOAL AND STRATEGY

The goal of STEM Accelerator is to assemble regional teams who will ensure that up to 100,000 students earn STEM degrees and certificates (both two-year and four-year) that meet regionally-identified workforce needs. Regional teams will accomplish this by examining data, identifying the STEM pathway(s) in which they plan to work, and engaging faculty and workforce to:

- Redesign gateway courses in STEM pathways (re)aligned to workforce and/or
- Provide professional development for faculty to support improved and innovative methods of teaching and learning (such as active learning or project-based learning)

EXPECTED IMPLEMENTATION OUTCOMES AND DELIVERABLES

The two major outcomes of this project are to:

1. Increase retention in STEM pathways by ensuring that STEM teaching practices are engaging and supportive.
2. Ensure that institutional policies and systems support retention and completion of STEM pathways, particularly among underrepresented students.

¹Schleicher, A. (2012). Education At a Glance: OECD Indicators.

²National Center for Higher Education Management Systems (2012). A new measure of educational success in Texas.

The Texas Tribune (2014). Higher Ed Outcomes. Austin, TX.