STEM Matters – Effective Institutional Change and Infrastructure Development

El Centro College, Dallas TX

Presented by: Dr. José Adames, Dr. Bryan Reece, and Lenora Reece

EL Centro STEM

Introduction to El Centro College

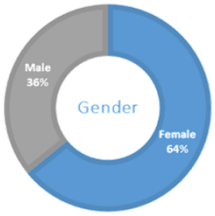
EL Centro College

- El Centro College (ECC) is one of 7 2-year colleges in the Dallas County Community College District.
- ECC was established in 1966
- The main campus is located in the heart of downtown Dallas and the college has since grown to several sites
- ECC became an HSI in 2001
- In 2011 ECC became an Achieving the Dream College

El Centro College

Our Students

- In Fall 2016, ECC enrolled 10,401 credit students and 1,694 continuing education students



89% of ECC's students are first generation college students & 64% of those are Hispanic

Our Programs

- STEM
  - Engineering Program with Texas A&M
- Fashion Design & Marketing
- Nursing
- General Academic Transfer
- Welding
- Credit & Non-Credit – Continuing Education

EL CENTRO FOOD & HOSPITALITY INSTITUTE

STEM

Our Partners

- Four-Year Colleges and Universities
- Texas A&M – Engineering

- Dallas Independent School District
  - Dual Credit
  - Collegiate Academies

ECC STEM Grants

2008 – El Centro's First HSI STEM Grant

- Funded under the Title V - College Cost Reduction and Access Act Hispanic-Serving Institutions (CCRAA-HSI)
- Cooperative Grant Awarded with El Centro College (ECC) as the lead institution and Texas Tech University (TTU) as the partner
- The Trinity River Audubon Center (TRAC) also partnered
- Total budget: $3,451,131
- Two year project with a no cost extension of 1 additional year

El Centro College
DALLAS COUNTY COMMUNITY COLLEGE DISTRICT

TEXAS TECH UNIVERSITY

Audubon

Project Overview

- ECC and TTU established 2+2 transfer agreement to open pathways to degrees and careers in Environmental Science
- This unique opportunity included a dedicated classroom at the TRAC, which allowed students to perform undergraduate research.
- Additionally, ECC and TTU worked to support articulation and transfer science curriculum along with lab experiences. This included creating articulated labs and field experience opportunities at both the TRAC and TTU's Llano River Field Station at Junction

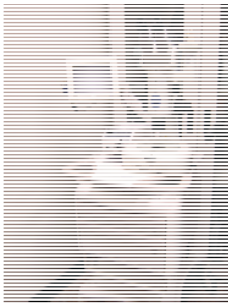
Project Overview Continued

- ECC also renovated/remodeled a number of academic spaces specifically to expand lab and classroom space for STEM majors (many of these labs were over 30 years old)
- ECC also purchased equipment and laboratory instrumentation and enhanced curriculum in order to create articulated pathways
- New support systems for math students were created which included supplemental instruction and math labs

- We developed and piloted student research opportunities
- Instituted STEM mentors and field experiences
- Worked with the community to create a pre-college pipeline leading to STEM transfer programs

2011 – El Centro's Second HSI STEM Grant

- Funded under the Hispanic-Serving Science, Technology, Engineering, and Mathematics and Articulation Programs; Title III, Part F
- Individual Grant Proposal
- Total budget: $4,348,875
- Five year project with a no cost extension of 1 additional year



Project Overview

- **Implement new STEM specific student support services, including advising, transfer, and career planning services**
- **Develop and implement new contextualized curriculum and add missing articulation pathways through the development of new courses, working with four-year universities to add articulated pathways and assure alignment of pre-requisite courses**
- **Enhance student learning engagement in STEM fields by renovating dated science and technology lab facilities and developing experiential learning opportunities through mentored internships**
- **Develop a pipeline for STEM enrollment through STEM-specific outreach activities at local schools and community events and providing STEM workshops and seminars on and off-campus**

STEM Looking Forward (2015-2021)

- Funded under the Hispanic-Serving Science, Technology, Engineering, and Mathematics and Articulation Programs; Title III, Part F
- Individual Grant Proposal, but partnerships with the University of North Texas at Dallas, and contracting with Tarleton State University
- Total budget: $5,794,010
- The activities proposed include:
  - A) new STEM courses, programs and pathways – including an innovative Urban Agriculture and Renewable Resources program;
  - B) a pipeline for STEM enrollment, math success and transfer from High School to University – focuses include math strategies, a joint Evidence-Based Innovation Consortia (EBIC) with UNTD for faculty development, and new articulations for transfer;
  - C) Enhancements in STEM student learning including learning communities/cohorts and mentoring; and
  - D) Strengthening of STEM advisement/counseling and creation of a STEM Ambassadors Honors Program.

UNT DALLAS
UNIVERSITY OF NORTH TEXAS AT DALLAS

The Process, Successes & Lessons Learned

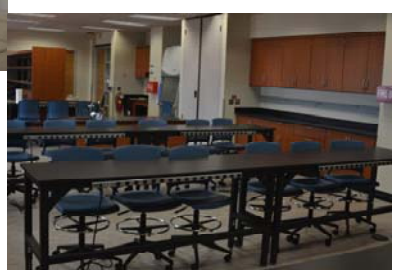
The Grant Planning Process

- Align with Institutional Goals
- Stakeholder meeting
  - Activity Meetings
  - Support Structure Meetings
- Address
  - Timing Concerns
  - Administrative Support
  - Budget Concerns
  - Creative and New Approaches

Transition to Implementation

- Set-up Budget
- Follow-up Meetings with stakeholders
- Personnel
- Organize detailed timeline
- Set-up support groups to help with activities
  - Facilities
  - Business Office
  - Computing
  - Academic Deans and Faculty

Renovations

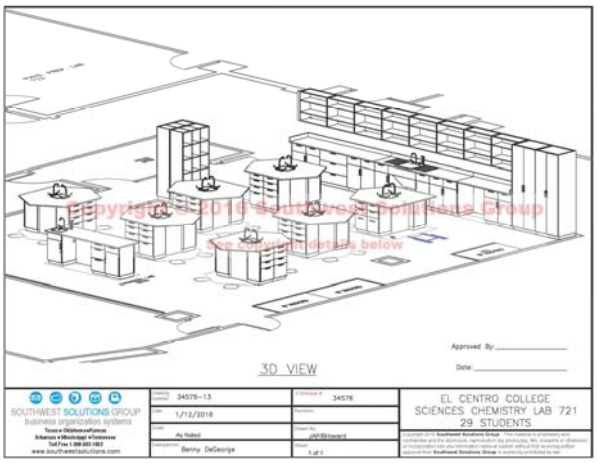


41 Total Renovations over the past 7 years

- Traditional Classrooms
- Wet Labs
- Dry Labs
- Computer Labs
- Prep Areas
- Supplemental Instruction Spaces

Case Study – Chemistry Lab

- Planning
- Faculty led
- Evaluation of infrastructure
- El Centro A building is over 100 years old
- Initiate processes



Case Study – Chemistry Lab

- What is the scope of your project?
- Will you need to use a general contractor? If yes, add 6 months
- Procurement process
- Timeline
- Facilitation with Faculty, Deans, and other Administration
- Bring in computing and facilities

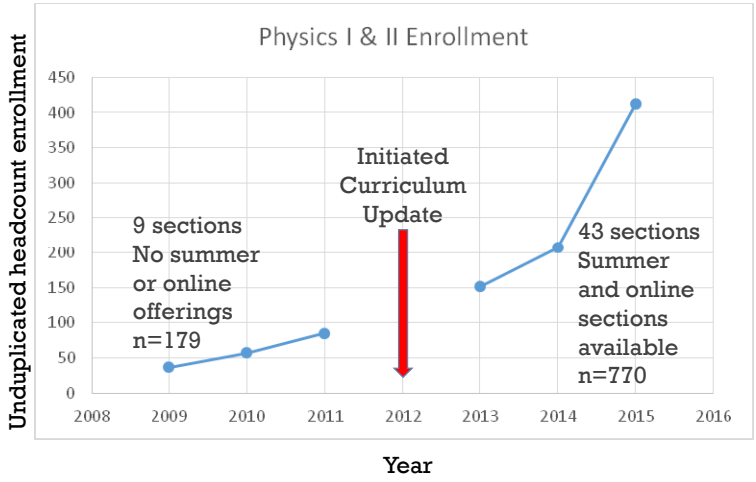
Creating a New Program or Curriculum: Physics

Low number of Physics offerings

Identified need for updated curriculum and course expansion

Data analysis of 3 years prior to and after initiating the curriculum and course expansion

Physics 1401 and 1402 enrollment/section data



STEM Success Model

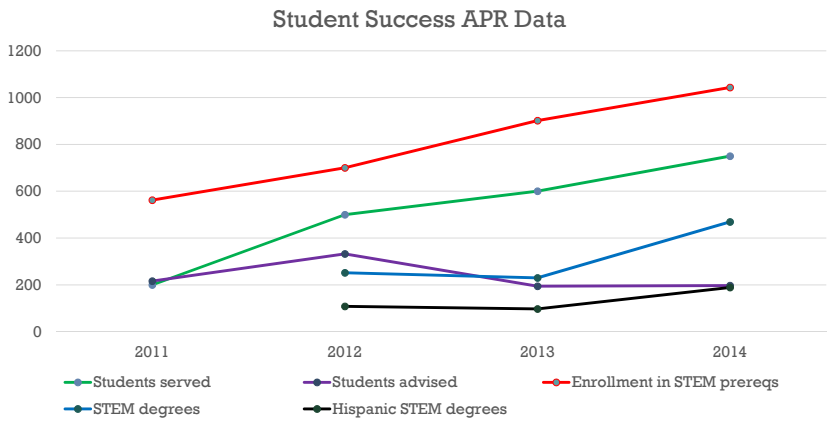
Student Success - STEM Center

STEM

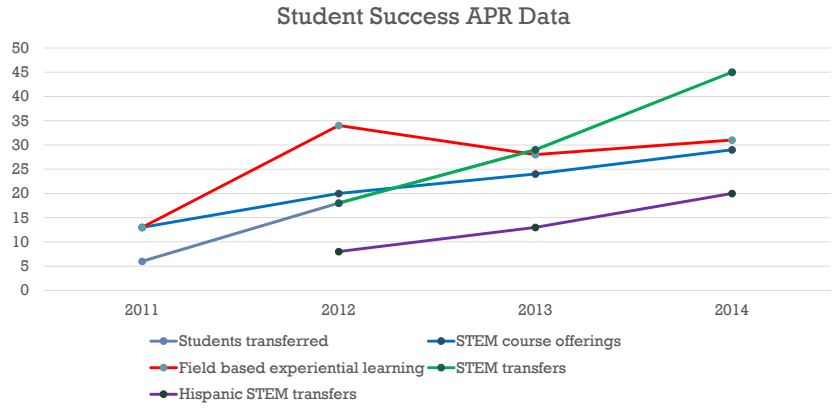
WHITE HOUSE INITIATIVE on EDUCATIONAL EXCELLENCE for HISPANICS

- Lessons Learned
  - Personnel
  - Internal Processes
  - Procurement
  - Data Management

Student Success Results



Student Success



Q & A

For more information, contact:

Dr. Bryan Reece, STEM Project Director
El Centro College
breece@dcccd.edu
214-860-2306