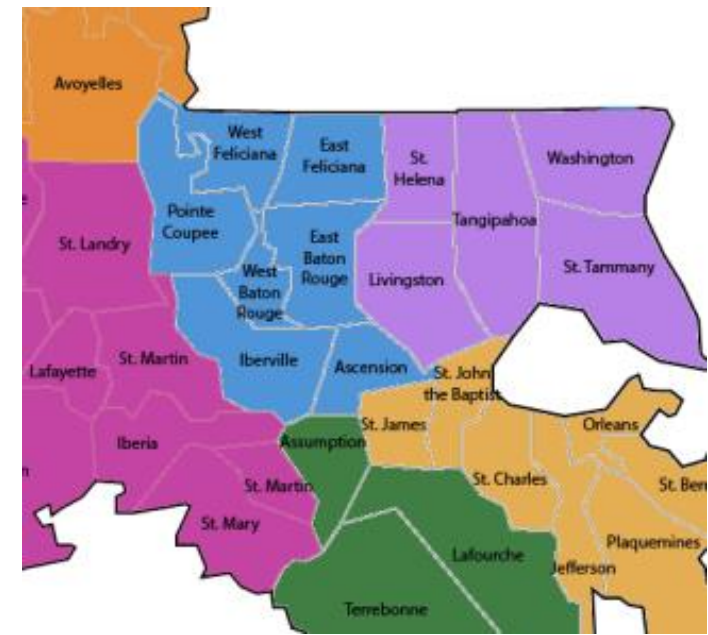


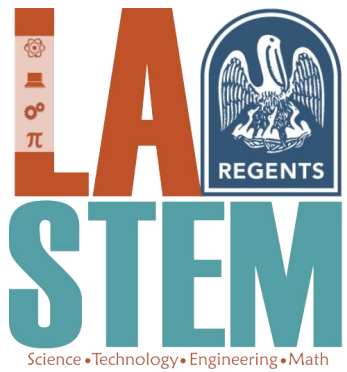


# CAPITAL AREA REGION 2



## Integrating STEM Into PK-16

Frank Neubrandner, Executive Director and Chair  
LSU Gordon A. Cain Center for STEM Literacy  
Regional STEM Network Center Host Entity for Region 2



# CAPITAL AREA - REGION 2











## Integrating STEM Into PK-16



### Planning Partners:

- Baton Rouge Community College, River Parishes Community College, Southern University, Franciscan Missionaries of Our Lady University, LSU
- East Baton Rouge Parish School System, West Feliciana Parish Schools, East Baton Rouge Career and Technical Education Center
- Forte and Tablada, Louisiana Tech Park, the Knock, Knock Children's Museum, Louisiana Women in Technology
- GEN READY Capitol Area STEM Ecosystem

# “Planning” Partner Highlights

<b>Four-Year</b> (In addition to dual credit and degree programs and specialty centers)			<b>Two-Year</b> (In addition to AA/Certificate Programs)		<b>Museums, Districts,            Nonprofits &amp; Businesses</b> 
					
<ul style="list-style-type: none"> <li>• LIGO Education Center and SMED Program</li> <li>• COSE (CScience) Partnerships with EBR Schools</li> <li>• Center for Cyber-security</li> <li>• Engineering and Science Summer Institutes</li> <li>• Robotics/Sensors Summer Camp</li> <li>• DXC Tech Cloud Computing Camp</li> <li>• Minority Disability Program</li> <li>• College of Engineering Computer-Aided Network</li> <li>• Career Days</li> <li>• Scholarships</li> </ul>	<p>Cain Center:</p> <ul style="list-style-type: none"> <li>• LSU DE (6,000+ students)</li> <li>• LSU STEM Pathways &amp; BRBYTES (3,500+ students)</li> <li>• STEM Micro-Credentials &amp; Teacher Certification (GeauxTeach)</li> <li>• STEM Pre-College Programs</li> <li>• Quality Science &amp; Math Grant Program</li> <li>• STEM Teacher Training Institutes &amp; Graduate Programs for Teachers</li> <li>• Grad Externship Program</li> </ul> <p>LSU:</p> <ul style="list-style-type: none"> <li>• School of Education, College of Engineering, Online &amp; Continuing Ed, CCT, Upward Bound</li> <li>• Girls Night at the Museum, College of Science: Geaux Girls</li> </ul>	<ul style="list-style-type: none"> <li>• STEM@FRANU Forensics Camp</li> <li>• Clover College</li> <li>• +4-H University 2-Day Healthcare Experiences</li> <li>• Healthcare Bootcamp (HS)</li> <li>• Area Health Ed 3-week Experience</li> <li>• Service Learning</li> </ul>	<ul style="list-style-type: none"> <li>• Annual PTEC Entergy Experience Camp.</li> <li>• Advising JumpStart&amp; Workforce Development Programs Programming</li> <li>• CS + Engineering Student Mock Interviews</li> <li>• IBM-Tara P-Tech Program</li> <li>• STEM Summer Camp for Middle Schoolers</li> <li>• EBRPSS STEM Night</li> <li>• 8<sup>th</sup> Grade Days</li> <li>• Internships</li> <li>• Undergraduate Research</li> <li>• Future Ladies in STEM</li> <li>• STEM Outreach Collaborations with La-WIT, Future’s Fund</li> <li>• Energize Your Destiny Energy industry Fair</li> <li>• Reboot Your Career Scholarships</li> <li>• Range of Workforce Development Solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Early Childhood and Family Outreach</li> <li>• Making and Tinkering Professional Development</li> <li>• MakingSpaces School Initiative for PK-5 Grades</li> <li>• Leap into Science PD for afterschool educators</li> <li>• PBS Ready to Learn Family Sessions</li> <li>• Community Making events </li> <li>• La-WIT Middle School Girl’s Coding</li> <li>• Middle School Engineering Challenges</li> <li>• High School Girls’ Hackathon</li> <li>• Girls on Rails (college girls coding)</li> <li>• Speed Mentoring</li> <li>• SQL Saturday Coding Event for youth</li> <li>• EBR Library Maker Fairs</li> </ul> 	
					<ul style="list-style-type: none"> <li>• EBRPSS, C-TEC, EBRPSS Foundation</li> <li>• W. Feliciana</li> <li>• Baton Rouge Area Chamber</li> <li>• Louisiana Tech Park</li> <li>• Forte &amp; Tablada </li> <li>• GENREADY Capitol Area STEM Collab.</li> </ul>

# CAPITAL AREA - REGION 2

## Vision for Integrating STEM Into PK-16



*To support the National Science and Technology Council's Strategic Plan for STEM Education, our collaborative network will*

- build strong foundations for STEM literacy:
  - master basic STEM concepts and be digitally literate
- increase diversity, equity, and inclusion in STEM:
  - lifelong access to high-quality STEM education for all
- prepare STEM workforce—both college-educated and skilled trade workforce without a four-year degree:
  - authentic learning experiences that encourage and prepare for STEM careers

# CAPITAL AREA - REGION 2 : Integrating STEM Into PK-16

## PROJECT-BASED FORMAL EDUCATION THAT ENCOURAGES STEM CAREERS

### Early Childhood

Building creativity, problem solving, and collaboration



Knock, Knock

Guided, inquiry-based learning

### Elementary

Hands-on project-based STEM projects & coding inspire interest



Cohn Elem + DowThink-a-bit Lab

Sci/Math proficiency  
Makerspaces +NGSS

### Middle

Build STEM skills via projects, exploratory STEM courses, Robotics



West Feliciana

Sci/Math proficiency  
Computer Science + NGSS

### High School

Excite and challenge  
Explore world of work + Computer Science + Engineering + STEM



Ascension CTE

STEM Pathways, IBCs + AP/DE + Technical/ Associate Degrees

### Postsecondary

Driven by interest, ability & exposure  
Preparing for work



STEM Internships at BRCC

Advanced and specialized coursework

## INFORMAL AND NON-FORMAL EDUCATION

Family engagement  
Interaction with adults  
Hands-on museums  
Library +STEM events

Robotics clubs  
Field trips/museums  
Career-based projects  
Library +STEM events

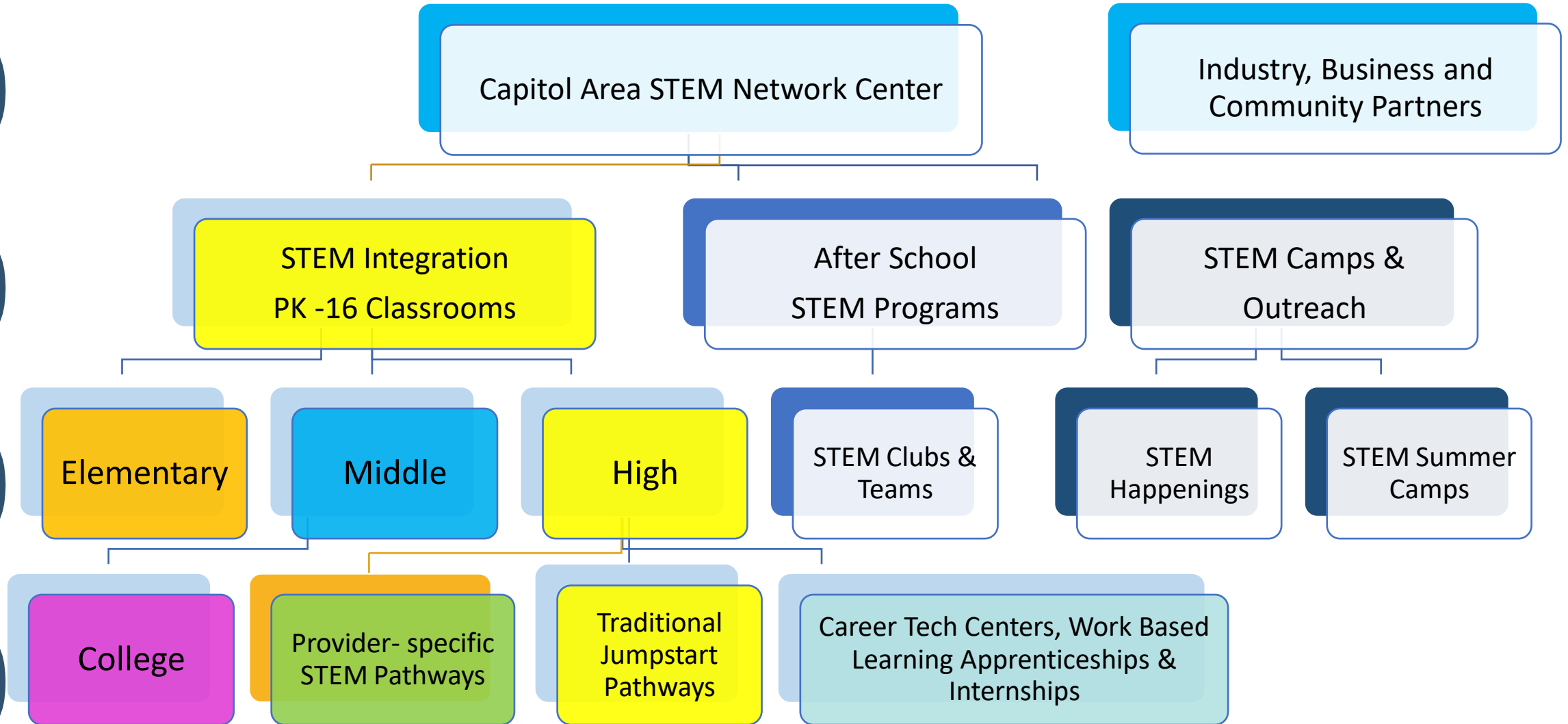
Mentor-led projects  
College tours/clubs  
Library & Museums

Career fairs/tours  
Pre-apprenticeships  
Summer Camps + Pre-College Programs

Job shadowing  
Internships, REUs  
Apprenticeships, Professional Orgs

# CAPITAL AREA - REGION 2

## Integrating STEM Into PK-16



# CAPITAL AREA - REGION 2

## Integrating STEM Into PK-16



### Jump Start 2.0 & Career-Tech Centers & Tech/Associate Degrees

1. Agriculture, Food and Natural Resources
2. Architecture and Construction
3. Arts, AV Technology and Communication
4. Business Management
5. Health Sciences
6. Hospitality and Tourism
7. Human Services
8. Information Technology
9. Law, Public Safety, Corrections and Security
10. Manufacturing
11. Transportation, Distribution, and Logistics

#### Provider Specific STEM Pathways:

1. ULM Pre-Educator Pathway
2. CYBER.ORG Cyber Security
3. LDOE Environmental Protection & Sustainability
4. LSU Biomedical Sciences (with ULM)
5. LSU Computing (with ULM)
6. LSU Digital Design & Emergent Media
7. LSU Pre-Engineering (with McNeese)
8. PLTW Pre-Engineering
9. XAVIER Pre-Pharmacy

Academic STEM Courses (Pre-AP & AP, DE, TOPS Core, .....)

# CAPITAL AREA - REGION 2

## Integrating STEM Into PK-16



### Survey Results of Seven Regional School Systems

#### Q1: Prioritize Level of Support Needed:

**#1: Elementary    #2: Middle    #3: Early Childhood    #4: High**

#### Q2: Top STEM Implementation Challenges:

- 1) Lack of strategy and guidance
- 2) Lack of qualified teachers
- 3) Limited options for professional development and the attainment for add-on credentials
- 4) Limited time for STEM → Current emphasis on ELA and Math
- 5) Lack of support to strengthen STEM learning and exposure to careers



# CAPITAL AREA - REGION 2

## Integrating STEM Into PK-16



### Survey Results of Seven Regional School Systems

#### Q3: Critical Services Needed:

- 1) **Planning and guidance** for vertical STEM integration at the district level
- 2) **Professional development** for teachers/leaders/counselors
- 3) **Curriculum resources** that are industry-focused and project-based
- 4) Visits & tours of STEM-heavy industries and businesses
- 5) Paid educator externships at local companies

#### Q4: Professional Development Preferences:

- 1) Integration of STEM **content learning** with inquiry & **project-based** activities
- 2) **Alternative assessment** methods; e.g., project-based learning assessment

# CAPITAL AREA - REGION 2

## Integrating STEM Into PK-16



### YEAR I Priorities

- 1) Design and pilot PK-12 **STEM Learning Frameworks:**  
**PK-5 → Middle School → High School & Career-Tech Centers**
- 2) Design and pilot project-based and workforce-focused **STEM curricula** with intensive **teacher professional development** opportunities
- 3) Redesign of college-level **STEM teacher training** programs
- 4) **Communication** of opportunities, resources, and successes
- 5) **Informal and non-formal STEM** education programs



# CAPITAL AREA - REGION 2

## STEM Network Center



Identify Needs

School Systems, Career - Tech Centers, Business & Community, Higher Ed



STEM Learning Frameworks, Teacher Training, Pathways and Pre-Pathways Curricula, Non-Formal STEM Education

Coordinate Project Teams



Product and Services Workgroups

LaSTEM Network Center



## **CAPITAL AREA - REGION 2**

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[CapitalAreaSTEM.org](http://CapitalAreaSTEM.org)