ADVISORY COUNCIL

September 13, 2017 | 10 a.m.

Welcome & Introductions

❑ Senator Sharon Hewitt

❑ Dr. Joseph C. Rallo

Roll Call

❑ Vernon Dunn

LaSTEM ADVISORY COUNCIL MEETING
Thomas Jefferson Room 1-136
September 13, 2017 • 10:00 a.m.

AGENDA

I. Welcome & Introductions- Commissioner Rallo & Senator Hewitt

II. Roll Call

III. Oaths of Office

IV. Review of ACT 392

V. Environmental Scan of Existing or Emerging STEM Initiatives

VI. Establish Quarterly and Annual Goals

VII. Establishment of Subcommittees/Workgroups

VIII. Open Discussion

IX. LaSTEM Fund to Include Corporate, State and Federal Grant/Financial Support

   Programs

X. Other Business

XI. Adjourn

Oaths of Office

❑ Dr. Uma Subramanian

Act 392

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Coordinate and oversee the creation, delivery, and promotion of STEM education programs;

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Increase student interest and achievement in the fields of science, technology, engineering and mathematics;

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Act 392

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Coordinate and oversee the creation, delivery, and promotion of STEM education programs;
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Ensure the alignment of education, economic development, industry, and workforce needs;

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Increase the number of women who graduate from a postsecondary institution with a STEM degree or credential; and
Establish a competitive grants program to fund robotics competitions

Existing or Emerging STEM Initiatives - Pockets

STEM Events

The National WWII Museum STEM Events

Real World Science: Weeklong summer seminar for middle school math and science teachers that explores key STEM concepts using real-world WWII examples.

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STEM Field Trips: Hands-on exploration and design challenges for science and math students.

STEM Ecosystems

BR STEM Network

Louisiana STEM Ecosystems
A **STEM learning ecosystem** encompasses schools, community settings such as after-school and summer programs, science centers and museums, and informal experiences at home and in a variety of environments that together constitute a rich array of learning opportunities for young people.

K-12 Pathways

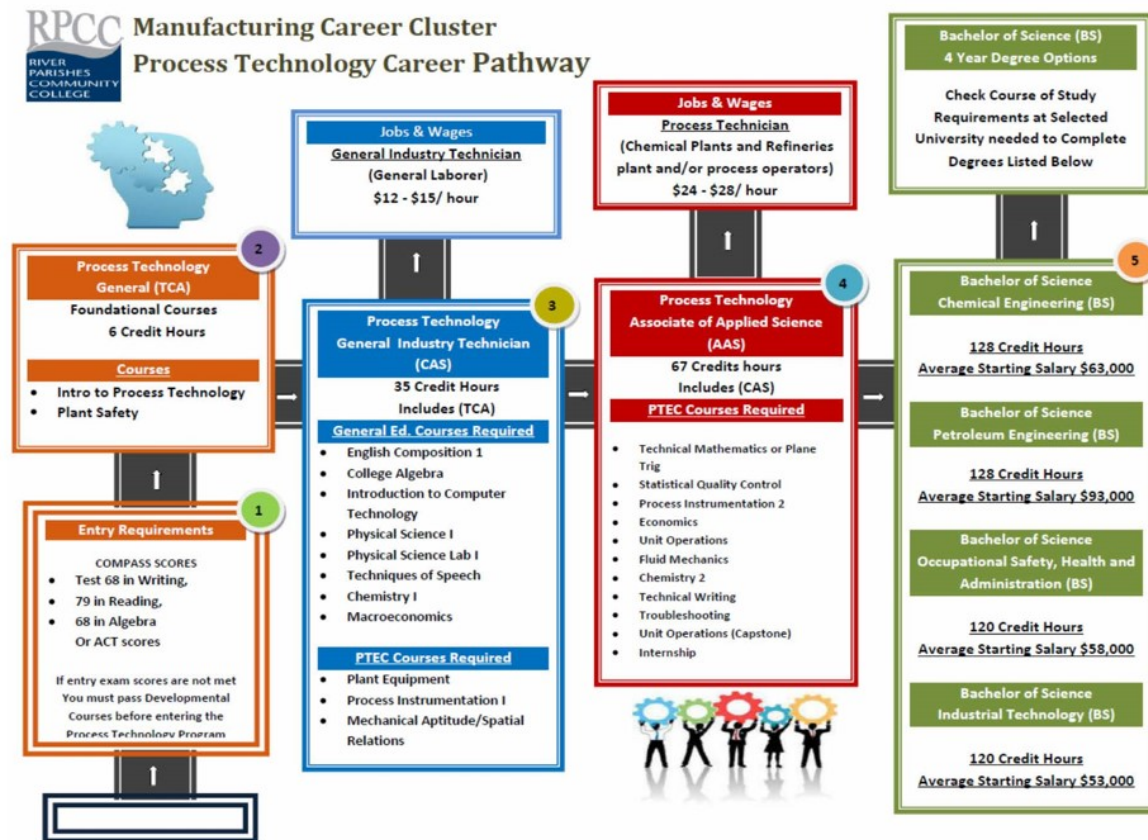| K-12 Pathways |
|---|
| Science, Technology, Engineering and Math (STEM) Pathway |
| Information Technology Pathway |
| Internet Web Foundations Pathway |
| Web Design Pathway |
| Digital Media Pathway |
| Cyber Engineering Pathway |
| Pre-Engineering Pathway |
| Revised Science Standards, Curriculum, and Assessments |

STEM Pathway

The next few slides have lots of words….**stay with me.**

K-12 Stars (A Few)

5 K-12 Stars
Kenilworth Science & Technology School - #1 Best Public High School for STEM in Louisiana- Niche 2017 (Baton Rouge, LA)
Patrick F. Taylor Science & Technology Academy - #1 Best Public High School for STEM in Louisiana- Niche 2017 (Avondale, LA)
Louisiana School for Math, Science, and the Arts (Natchitoches, LA)
David Thibodeaux STEM Magnet Academy (Lafayette, LA)
University Lab School: Students participated in 59th Annual London international Youth Science Forum, Middle School STEM Club, School STEM Lab, Robotics Teams, Girls Who Code, AP Computer Programming, School Science Fair

High School Recruiting - Public

High School STEM Recruiting

LSU System: XCITE: Xploration Camp Inspiring Tomorrow's Engineers
    • REHAMS: Recruiting into Engineering High-Ability Multicultural Students
    • Year Zero (a President's Future Leaders in Research Program)
    • Coast & Environment (Ocean Commotion)
    • IMRAM: Initiative for minority recruiting and mentoring in Mathematics

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UL System: LEAP: Louisiana's Engineering Advancement Programs (UNO)
   • STEAM Discovery (Science Technology Engineering Arts Math)– Young scholars summer camp (ULM, LSUS)
   • Summer Enhancement Camp-Reading and Math (SLU)
   • President's Academy – Computer Science, Health Science, Physical Science, etc.
   • Pre-Freshman Academy -Entering freshman to increase mathematical literacy (GSU)

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SU System: The Timbuktu Academy – Critical thinking, **math**, etc. (SUBR)
- **Robotics** and Sensors Summer Camp (SUBR)
- College Summer STEM Program (**Math** & **Science** enrichment) (SUBR)
- (ESI): **Engineering** Summer Institute (SUBR)
- Transportation & Energy Institute – **Math**, **Science**, Robotics (SUBR)

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LCTCS: STEM Camp (BRCC)

High School Recruiting - Private

High School STEM Recruiting

Dillard: Pre-Freshman **Engineering** – 7th thru 10th, scientific demonstrations, experiments, **mathematical** reasoning, **computer science**, **Science** & **engineering** fairs.
- YSEC: Young Scholars Environmental Camp- 1st thru 8th Grade

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Tulane: The Perry Initiative – Building the pipeline for **WOMEN** in **engineering** and **medicine**. • AiCHE: American Institute of Chemical Engineers Outreach Program • Tulane Science Scholars Program • GIST: **Girls** in **STEM** at Tulane (grades 5-7) • BATS: Boys at Tulane in **STEM** (grades 5-7)

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XULA: LEAP: Louisiana **Engineering** Advancement Scholars Program (9th-11th Grade)
    • SOAR: Stress on Analytical Reasoning- rising seniors interested in **science careers**
    • Summer Science Academy STAR Programs- **STEM** Institute for middle-high schoolers interested in science careers
    • **BioStar**, **ChemStar**, **MATHStar**, CoE, FMSTA, LEAP, Superscholar Excel

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Undergraduate & Graduate Degrees in STEM

Federally Funded Programs
HHMI: Howard Hughes Medical Institute – LSU

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LSAMP (NSF) : Louis Stokes Alliance for Minority Participation- increasing number & quality of minority students pursuing undergraduate and graduate degrees in STEM – (LSU, Dillard, GSU, McNeese, Nunez, SUBR, SUNO, SUSLA, Tulane, ULL, UNO, XULA)

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Bridge to Baccalaureate (NIH): Biomedical and Behavioral Science BRCC Majors can transition to LSU to complete degree

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Undergraduate & Graduate Degrees in STEM

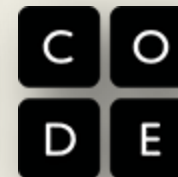| Federally Funded Programs |
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| **Bridge to Baccalaureate (NIH):** Biomedical and Behavioral Science BRCC Majors can transition to LSU to complete degree |
| **MARC** (Maximizing Access to Research Careers) & **RISE** (Research Initiative for Scientific Enhancement) – for pursuit of PhD in biomedical careers (XULA) |

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LSU College Readiness Program: 8 Day summer workshop for teachers to become certified in math course (Algebra, Geometry, AP Calculus)

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The Math and Science Institute (MSI): For middle & high school teachers to explore mathematical and scientific issues and ideas (coordinated by MPCDS, hosted by Tulane)
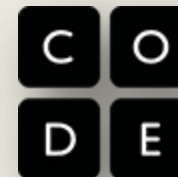
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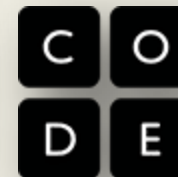
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Core Element's **Summer STEM Institute sponsored by Schlumberger** offers teachers an opportunity to learn techniques and processes that are the key ingredients to improve and motivate STEM learning in a classroom environment.

National Initiatives

National Initiatives

Benchmarks
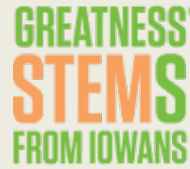
Benchmarks

Current Active Working Groups

Broadband for Iowa
Community College STEM Network
Four-Year College STEM Network
Iowa STEM Conference Planning
STEM Active Learning Community Partners
STEM BEST Selection and Guidance
STEM Business Engagement
STEM Communications
STEM Engagement of School Counselors
STEM Equity
STEM Scale-Up Planning
STEM Seal of Approval
STEM Support of Ag. Science
STEM Supports of Arts and Science
STEM Supports of Computer Science
STEM Volunteer Service
STEM Youth Advisory Board
STEM Program Evaluation

Current Programs

Microsoft IT Academy
STEM Scale-Up Program
Teacher Externships
Iowa STEM Conference Planning
Code Iowa
STEM Endorsement
STEM Redesigned Learning Environments (RLE)
STEM Festivals
STEM Business Engaging Students and Teachers (BEST)
STEM Program Evaluation Network

Quarterly & Annual Goals

GOALS
1-3 Months: Environmental Scan

Quarterly & Annual Goals

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1-3 Months: Environmental Scan
4-6 Months: Develop Goals *First Report to Senate and House Committees on Education Due January 13, 2018*

Quarterly & Annual Goals
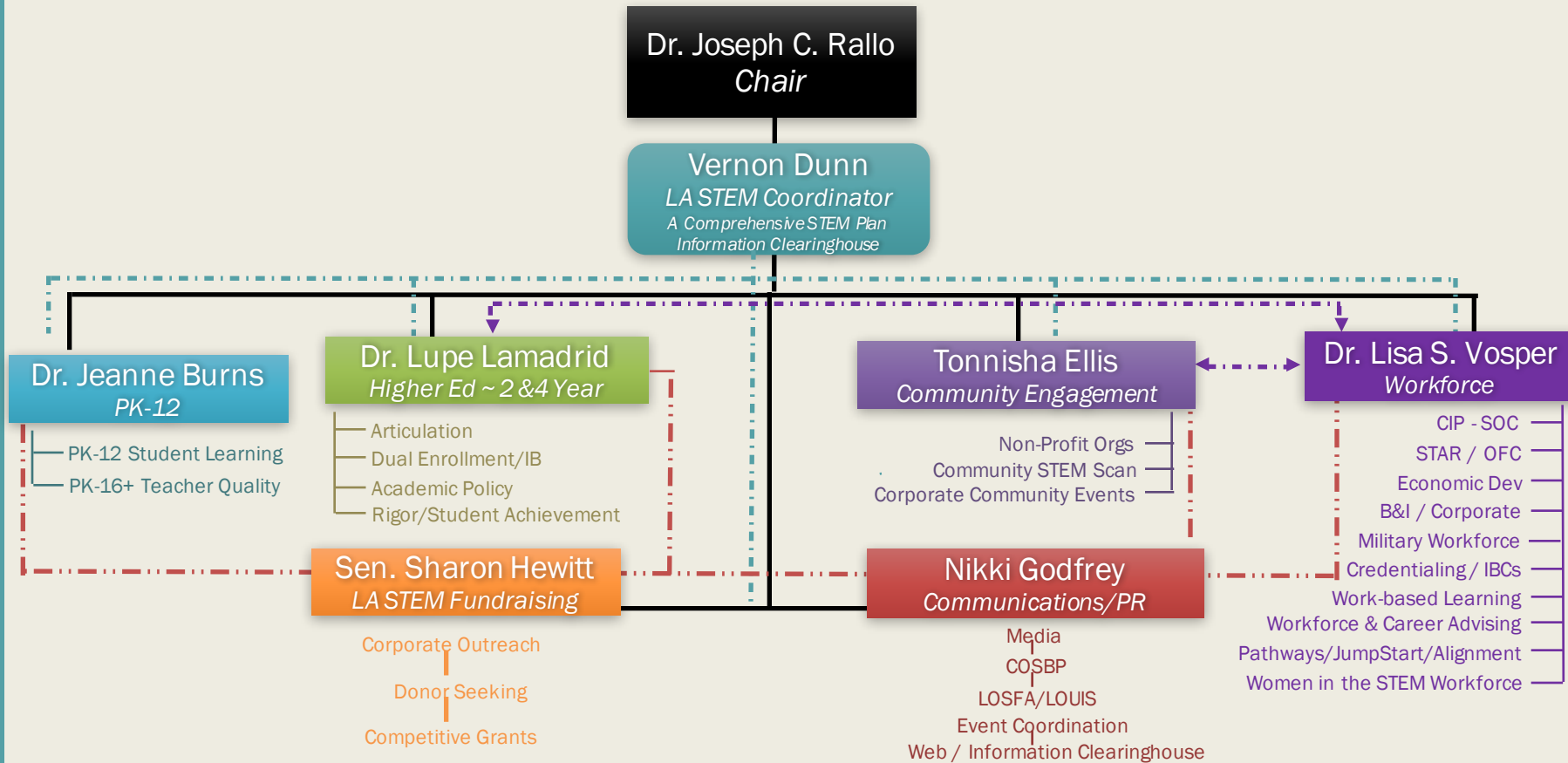
GOALS
1-3 Months: Environmental Scan
4-6 Months: Develop Goals *First Report to Senate and House Committees on Education Due January 13, 2018*
6-12 Months: As funding allows, start implementing programs

LA STEM Subcommittees & Workgroups

Dr. Joseph C. Rallo
Chair

Vernon Dunn
LA STEM Coordinator
A Comprehensive STEM Plan
Information Clearinghouse

Dr. Jeanne Burns
PK-12
- PK-12 Student Learning
- PK-16+ Teacher Quality

Dr. Lupe Lamadrid
Higher Ed ~ 2 &4 Year
- Articulation
- Dual Enrollment/IB
- Academic Policy
- Rigor/Student Achievement

Tonnisha Ellis
Community Engagement
- Non-Profit Orgs
- Community STEM Scan
- Corporate Community Events

Dr. Lisa S. Vosper
Workforce
- CIP - SOC
- STAR / OFC
- Economic Dev
- B&I / Corporate
- Military Workforce
- Credentialing / IBCs
- Work-based Learning
- Workforce & Career Advising
- Pathways/JumpStart/Alignment
- Women in the STEM Workforce

Sen. Sharon Hewitt
LA STEM Fundraising
- Corporate Outreach
- Donor Seeking
- Competitive Grants

Nikki Godfrey
Communications/PR
- Media
- COSBP
- LOSFA/LOUIS
- Event Coordination
- Web / Information Clearinghouse

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PK-12 STUDENT LEARNING

PK-12 Student Learning

PK-16+ Teacher Quality

Common Themes in Research

Teachers play a critical role in students' STEM career choices.

Employing a hands-on approach sparks enthusiasm for students selecting a STEM career.

BESE Student Content Standards
- Science Standards (2017)
- Mathematics Standards (2016)
- English Language Arts Standards (2016)

STEM Initiatives Scan
- PK-8, High School, College Students
- PK-12 Preservice Teachers
- PK-12 In-service Teachers, & Parents

STEM Resources Critical for Student Success

PK-16+ TEACHER QUALITY

PK-12 Student Learning

PK-16+ Teacher Quality

Louisiana STEM Areas for Initial Teacher Certification

Biology, Chemistry, Computer Science, Earth Science, Environmental Science, General Science, Mathematics, Physics, and Technology Education

Are new areas of teacher certification needed in cyber skills, robotics, engineering, etc.?

Pathways to Teacher Certification

- Undergraduate (Initial)
- Alternate: Practitioner Teacher Program, Certification-Only Program, and Master of Arts in Teaching (for individuals with non-education baccalaureate degrees) (Initial)
- Add-on (Certified Teachers)

New Starting July 1, 2018
Full Year Residencies & Mentor Teachers

Potential for teachers & teacher candidates to learn new hands-on approaches together

STEM Resources Critical for Teacher & Teacher Candidate Success

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Higher Education - 2 Year & 4 Year

── Articulation

── Dual Enrollment/IB

── Academic Policy

── Rigor/Student Achievement

Current Research

Lack of fit into major, the environment (gender stereo typing signals), & perception of major & grades, (National Bureau of Economic Research, August 2017).

Computer Science, Biophysics & Physics tend to be male-dominated (Kugler, 2017)

Neurobiology, Environmental Science & Biology of Global Health tend to be female dominated (Kugler, 2017)

Current Pathways

Dual Enrollment & 2+2 Agreements

Programming

Challenges

Rigor of foundational courses

Need for clarity of student advising at both secondary and post-secondary levels

Funding for initiatives and resources

Opportunities

Informing students/parents on the importance of foundational background in Math & Science

Identifying specific pathways and discovery of opportunities

Informing and advising students about necessary skill set for success in STEM

Collaboration between secondary and post-secondary institutions on workshops/summer programs

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Higher Education - 2 Year & 4 Year

- Articulation
- Dual Enrollment/IB
- Academic Policy
- Rigor/Student Achievement

Short Term

Targeted communication sent to HS students currently enrolled in STEM courses via DE/AP or CLEP & their parents regarding importance of strong foundational skills in STEM courses

Messaging to those populations should inform both students & parents of importance of STEM & provide listing of opportunities for discovery

Targeted communication to current students enrolled in STEM fields at 2/4 yr. institutions regarding benefits and opportunities

Develop strategies to reach out to military students who are coming back to school after service and potentially have a skill set that would be congruent with STEM majors

Long Term

Policy - Establish policies to increase rigor of foundational courses critical to future success in STEM majors, this could establish a pipeline of students beginning in high school

Legislation

Incentives/Scholarships for students who major in STEM fields either in Education or Practical fields, particularly women and minority students

Build more opportunities for post-secondary collaboration by incentivizing creation of 2+2 pathways

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Community Engagement

Non-Profit Orgs

Community STEM Scan

Corporate Community Events

Asset - Map

Catalog current and on-going events

Community STEM initiatives
- ❑ Schools
- ❑ Corporations
- ❑ Non-profit
  - ▪ Organizations
  - ▪ Churches, others

Identify

Regions with limited STEM initiatives

Populations being served

Community Engagement

Non-Profit Orgs

Community STEM Scan

Corporate Community Events

Analyze

Barriers that limit STEM participation

Opportunities to grow STEM participation and increase STEM footprint in the State

Collaborate

Workforce on overlapping business and industry initiatives

Public Affairs on community events and marketing

Workforce Subcommittee

CIP - SOC
STAR / OFC
Economic Dev
B&I / Corporate
Military Workforce
Credentialing / IBCs
Work-based Learning
Workforce & Career Advising
Pathways/JumpStart/Alignment
Women in the STEM Workforce

Louisiana Workforce
Workforce projections indicate that approximately **67,000 new and replacement jobs** will need to be filled each year as the State's economy continues to develop.
Of the jobs in LA's Occupational Forecast, **40%** are STEM or STEM-related jobs.
Of the jobs that have a 4 or 5 STAR jobs rating, **58%** are STEM/STEM-related jobs.

Workforce Subcommittee

CIP - SOC
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Louisiana Workforce
According to recently released ACT Data, **only 10%** of high school graduates are STEM-ready and jury is still out on the STEM-readiness percentage of all college graduates.
On the surface, there appears to be a **significant STEM-workforce readiness gap.**
The Workforce Subcommittee will investigate this gap and explore strategies to minimize it.

Communications & Public Relations

Nikki Godfrey
Communications/PR

LaSTEM Communication Efforts
Brand Development
Media Coordination
Event Management
Calendar of Statewide Events

Media

COSBP

LOSFA / LOUIS

Event Coordination

Web / Information Clearinghouse

Open Discussion

You've heard our preliminary ideas; let's talk about it!

Have we forgotten anything?

LaSTEM Fund

Grants
Corporate

LaSTEM Fund

Grants
Corporate
State

LaSTEM Fund

Grants
Corporate
State
Federal

Other Business

LaSTEM Website

❑ www.regents.la.gov/page/lastem
❑ Please email all website inquiries to bor.publicaffairs@regents.la.gov

Other Business

UPCOMING MEETING DATES

- Wednesday, October 18, 2017
- Tuesday, November 28, 2017
- Wednesday, December 13, 2017
- Wednesday, January 10, 2018
- Wednesday, Feb. 7, 2018
- Tuesday, March 13, 2018
- Thursday, April 12, 2018
- Wednesday, May 16, 2018
- Tuesday, June 12, 2018
- Wednesday, July 18, 2018
- Wednesday, August 15, 2018

Thomas Jefferson A and B are reserved for LaSTEM|Advisory Council Meeting Dates

Other Business

Next Steps
Sign up for Subcommittees/Workgroups
Success Stories *Please pass on suggestions by the next meeting.*

Educate

ELEVATE
Louisiana

Innovate