The National & State Context of STEM Education: Past, Present, and Future

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An Ongoing National Challenge

2012: Engage to Excel: Producing One Million College Graduates with Degrees in Science, Technology, Engineering and Mathematics
2011: Complete College Georgia
2007: Rising Above the Gathering Storm
2001: Federal No Child Left Behind Act
1983: A Nation At Risk: The Imperative for Educational Reform
By 2020, it’s anticipated that 60% of jobs will require some form of higher education (certificate, associate’s, bachelor’s).

Currently, 42% of our young adults (age 25-34) qualify.

*Projected need, assuming current graduation levels are maintained, and population change is met.
100 Georgia Public 9th Graders

56 Graduate High School

24 Start a 4-year College
19 Become Sophomores
6 Graduate Within Time

13 Start a 2-year College
6 Become Sophomores
3 Graduate Within Time

91% Loss
STEM Education is Critical

PCAST’s conclusion:

1,000,000 STEM graduates → 10 years

Currently, of all intended STEM majors:

40 percent → complete degree

Georgia’s commitment:

expanding access and success through innovative practices
Setting the Stage

• HOPE Scholarship (1993)
• Regents’ P-16 Initiative (1995)
• Regents’ Principles for the Preparation of Educators for the Schools (1998)
• The Partnership for Reform in Science and Mathematics-- PRISM (2003)
8.3.15 Enhancing Teaching and Learning in K-12 Schools and USG Institutions

The BOR recognizes the value of USG faculty engagement in the effort to continuously improve teaching and learning in K-12 schools and USG institutions.

- **Work in K-12 Schools**
  
  USG institutions will support and reward faculty who participate in significant and approved efforts to improve teaching and learning in K-12 schools, including teacher preparation, through decisions in promotion and tenure, pre-tenure and post-tenure review, annual review and merit pay, workload, recognition, allocation of resources, and other rewards.

- **Work in USG Institutions**
  
  USG institutions will support and reward faculty who participate in significant efforts to improve teaching and learning in USG institutions through decisions in promotion and tenure, pre-tenure and post-tenure review, annual review and merit pay, workload, recognition, allocation of resources, and other rewards.
USG STEM Initiative I

• Launched by Chancellor as a Presidential Initiative (2007-2011)

• Three Goals:
  ➢ Increase the number of K-12 students interested in STEM
  ➢ Increase the number of students in college who pursue the STEM disciplines
  ➢ Increase the number of teachers prepared in science and mathematics

“Creating A More Educated Georgia”
Strategy #1: HS Course Requirements

Strategy #2: Public Awareness Campaign

Strategy #3: Academy Future Teachers

Strategy #4: Replicate MESA

Strategy #5: Institute on Teaching and Learning of SM

Strategy #6: A, B, C rates in Intro Courses

Strategy 7: Mathematics Success

Strategy 8: STEM Production Targets

Strategy 9: Incentives for STEM Faculty

Strategy 10: STEM Majors in Teaching

Strategy 11: Culture Change “Work in the Schools”

Strategy 12: Set SM Teacher Production Targets

“Creating A More Educated Georgia”
Key Programs & Outcomes

➤ Academy of Future Teachers
  ➤ Attract talented HS students to teaching profession
  ➤ FY 2008 – FY 2010: 6 Institutions
  ➤ 334 High School students participated in AFT
Key Programs & Outcomes

- **Project MESA** (Mathematics Engineering Science Achievement)
  - Increase retention of underrepresented groups in STEM fields at 2-yr institutions
  - 95.8% increase in participation (119 to 233)
  - Increased retention rate
  - Increase in the number of students transferring to 4-yr institution

“Creating A More Educated Georgia”
Key Programs & Outcomes

- **Structured Mini-Grant Program**
  - Faculty collaboration in K-16 Learning Communities & SoTL activities
  - Work to increase success and retention in introductory STEM courses
  - FY 2009- 80 Mini-grants funded
  - FY 2010- 57 Mini-grants funded

“Creating A More Educated Georgia”