ASSOCIATION OF PUBLIC AND LAND-GRANT UNIVERSITIES

## News Release

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# 79 Public University Leaders Sign Letter to President Obama Pledging to Address National Shortage of Science and Mathematics Teachers

*41 Public Research Universities Pledge to Double the Number of Graduates of Science and Mathematics Teacher Preparation Programs by 2015*

WASHINGTON, DC (January 6, 2010) —Public research university leaders representing some 120 universities today pledged to address the national shortage of science and mathematics teachers through the Science and Mathematics Teacher Imperative (SMTI), sponsored by the Association of Public and Land-grant Universities (APLU), in a letter presented to President Barack Obama. (the letter is located at the end of this news release)

In the letter, signed by leaders from 79 public research universities or university systems, the university presidents and chancellors "pledged to substantially increase the number and diversity of high-quality science and mathematics teachers we prepare, and to build better partnerships among universities, community colleges, school systems, state governments, business and other stakeholders."

Thirty-nine institutions and three university systems have also pledged to at least double the number of science and mathematics teachers graduated by 2015.

"Together, our institutions committing to the Science and Mathematics Teacher Imperative will strive to increase the number of new science and mathematics teachers we prepare to more than 10,000 annually by 2015, for an additional 7,500 new teachers over the next five years," the university leaders wrote.

The letter concludes: "In sum, we are committed to addressing this critical national need for more and better science and mathematics teachers. Through SMTI we have come together to learn from leading innovative programs, define and assess the quality of our efforts, understand how to better partner with school systems, and challenge ourselves to improve relentlessly our activities."

The letter was hand delivered to The White House by Lee T. Todd, Jr., president of the University of Kentucky; Bernadette Gray-Little, chancellor of the University of Kansas; William "Brit" Kirwan, chancellor of the University System of Maryland; Philip P. DiStefano, chancellor of the University of Colorado at Boulder; Peter McPherson, president of APLU; and Howard Gobstein, executive officer and vice president and co-director, Science and Mathematics Teacher Imperative at APLU.

"America's leadership tomorrow depends on how we educate our students today, especially in science, math and engineering," said President Obama. "That's why I'm pleased to announce the expansion of our "Educate to Innovate" campaign today and applaud the several new partnerships launched that will help meet our goal of moving American students from the middle to the top of the pack in science and math achievement over the next decade."

SMTI, launched by APLU in November 2008, encompasses 121 public research universities in 41 states and the District of Columbia—including 11 university systems. Combined, these institutions currently

prepare more than 7,500 science and mathematics teachers annually—making it the largest Science, Technology, Engineering and Mathematics (STEM) new teacher initiative in the country.

"Public research universities have a central role to play in educating science and mathematics teachers," said APLU President Peter McPherson. "We enroll more undergraduate science, mathematics and engineering students than any other type of U.S. university and, moreover, many of our universities have large colleges of education. This combination is just right for public research universities to make a major contribution to meeting the call by President Obama and Education Secretary Duncan to raise American students to the top of the pack in science and mathematics achievement."

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Through the initiative, APLU has galvanized university leadership to action as well as sought to encompass the successful programs already in place on member campuses, track progress with metrics and program assessments, and collaborate effectively with national efforts of the education sector, private sector, and state and federal governments.

**University of Kentucky**
"Our nation's economic competitiveness is at risk if we are unable or unwilling to address the shortage of qualified science and mathematics teachers," said Todd. "We must rebuild our ability to prepare the world's most educated and scientifically and mathematically literate workforces if we are to continue among the world's most secure and competitive economies. Recruiting and preparing new teachers and providing access to ongoing education research will be critical to solving our science and mathematics teacher challenge."

The University of Kentucky and its partners are at the forefront of this effort with the Kentucky P20 Innovation Lab and a strategic plan and systemic alignment of curriculum from pre-school through graduate education. The plan includes recruiting and preparing STEM teachers, providing ongoing professional development, extensive education research and, significantly, translating research findings into the classroom.

**University of Kansas**
In Kansas, declining interest in teaching combined with high levels of attrition is posing a challenge as the current teaching force nears retirement.

"The education workforce in Kansas is rapidly graying, with many of our highly qualified teachers nearing retirement," said Gray-Little. "Trends are combining to escalate the deficit of qualified science and mathematics teachers, leading us to wonder who will prepare the next generation of science and mathematics teachers who will in turn inspire future generations of science, technology, engineering and mathematics professionals."

The UKan Teach program, sponsored by the KU Center for Science Education, in its first two years already has seen enrollment grow from 33 to 157 students. By 2014, the university projects enrollment of 430 students with an annual graduation rate of 120 science and mathematics teachers each year. The program is modeled after the nationally renowned UTeach program.

**University System of Maryland**
"Higher education has a critical responsibility in preparing a competitive workforce for the 21st century," said Kirwan. "In Maryland, we have called upon both the public and private sector to develop a statewide agenda to address science and mathematics education."

The University System of Maryland's ambitious agenda includes tripling the number of highly qualified STEM teachers produced by the state's 11 public universities from 120 to 360 by 2015. Also, $20 million in National Science Foundation grants has funded professional development programs for biology, chemistry, physics, and earth/space science teachers; provided summer training opportunities in research laboratories at USM institutions; and enabled university faculty, graduate students and high school teachers to form learning communities to review curriculum and explore inquiry-based instruction in high schools and colleges.

**University of Colorado at Boulder**
The University of Colorado at Boulder stands alone in the breadth of its integrated campuswide STEM initiatives that transform the way undergraduate courses are taught. CU-Boulder's Learning Assistant Program, replicated at 12 other institutions, has worked aggressively to recruit and prepare future K-12 science and mathematics teachers. To date, 444 STEM majors have participated in the program, helping to improve introductory courses in 10 departments and to impact more than 8,000 CU students each year.

CU-Boulder is also only one of 13 teacher education programs in the nation awarded a grant in 2007 by the National Math and Science Initiative (NMSI) to model its CUTeach program after the nationally renowned UTeach program. Additionally, Distinguished Professor and Nobel laureate Carl Wieman launched the Science Education Initiative in 2006 to incorporate research findings on effective science instructions in classrooms at CU-Boulder.

"In recent years, a good number of public research universities have begun to address the issue of science and mathematics education and teacher preparation," said DiStefano. "Working through SMTI will enable our institutions to significantly impact science and mathematics education in our states and across the nation. It is a matter of economic security and global competitiveness."

**ABOUT THE ASSOCIATION OF PUBLIC AND LAND-GRANT UNIVERSITIES**
Founded in 1887, the Association of Public and Land-grant Universities (A·P·L·U) is an association of public research universities, land-grant institutions, and many state public university systems. A·P·L·U member campuses enroll more than 3.5 million undergraduate and 1.1 million graduate students, employ more than 645,000 faculty members, and conduct nearly two-thirds of all academic research, totaling more than $34 billion annually. As the nation's oldest higher education association, A·P·L·U is dedicated to excellence in learning, discovery and engagement. For more information, visit www.aplu.org (Formerly known as NASULGC).

**ABOUT THE SCIENCE AND MATHEMATICS TEACHER IMPERATIVE**
The Association of Public and Land-grant Universities (APLU) launched the Science and Mathematics Teacher Imperative (SMTI) in November 2008 to increase the number and diversity of high-quality middle and high school science and mathematics teachers in the United States. Today, SMTI encompasses 121 public research universities in 41 states—including 11 university systems. Combined, these institutions prepare more than 7,500 science and mathematics teachers annually—making it the largest STEM new teacher initiative in the country.

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ASSOCIATION OF PUBLIC AND LAND-GRANT UNIVERSITIES

**Science and Mathematics Teacher Imperative**

January 6, 2010

President Barack Obama
The White House
1600 Pennsylvania Avenue
Washington, D.C. 20500

Dear Mr. President:

We write to salute your leadership and determination to revolutionize science, technology, engineering, and mathematics (STEM) education and to convey our commitment to contributing significantly to this noble goal.

As you have so eloquently stated, if we as a nation do not prepare one of the world's most educated, and scientifically and mathematically literate workforces, then we have no chance of continuing to be one of the world's most secure and competitive economies.

To educate our students to compete effectively in the global economy, we need to prepare the world's best science and mathematics teachers. As the institutions with, by far, the largest cohorts of the most capable undergraduate science, mathematics and engineering students, public research universities have a critical role to play in preparing the number and quality of teachers the nation requires. Over the past several decades, our large public research institutions have all too often stood aside and not participated as we can–and must–to the critical need for highly qualified science and mathematics teachers.

Discovery from research stimulates excitement and enthusiastic attention from young people. Learning by doing research at major research universities teaches science in the way that mere rote learning cannot. One of the needs now is to teach science in a different and more meaningful way–by prompting students to learn how to find the answers–and, perhaps more important, how to ask the questions. Even at the most basic level, teachers prepared at research universities have the opportunity to understand the world through their own explorations and thus become significantly more effective in their teaching craft. Decades of research on how people learn, studies of environments that support student learning, and successful models of teacher professional development, advocate for such approaches.

Many of our institutions–still too few–have demonstrated that a whole university (colleges of science and education working together) can cast science and mathematics teaching as the critical and noble profession that it is for young people to consider.

As presidents of major public universities, we are newly resolved to address this national challenge. We offer as a new major contribution to your Administration's efforts, our commitment to the **Science and Mathematics Teacher Imperative** (SMTI).

We deliberately define this effort as an **Imperative**. We do not take this lightly, simply issuing a statement or report, expecting others to implement. For this sustained effort, our pledge is to substantially increase the number and diversity of high-quality science and mathematics teachers we prepare, and build better partnerships among universities, community colleges, school systems, state governments, business, and other stakeholders.

Preparing more than 7,500 mathematics and science teachers annually, we are presently 121 public research universities across 41 states–including 11 university systems. We launched this new and powerful effort about a year ago, making it the nation's largest such initiative.

While each of our efforts reflects the needs in our particular states for science and mathematics teachers, and acknowledges intense fiscal challenges, 39 institutions and several systems are today committing to at least doubling the number of teachers they prepare. (A chart of our individual commitments is included below.) Together, our institutions committing to SMTI will strive to increase the number of new science and mathematics teachers we prepare to more than 10,000 annually by 2015, for an accumulated 7,500 new teachers over the five years from what we would have prepared.

We and our colleagues on science, mathematics and education faculties participating in SMTI are inspired and driven by a "can-do" attitude:

- Faced with a plethora of "one-off" innovative, exemplary and dedicated programs across the country over the past decade by universities in Texas, California, North Carolina, Georgia and Colorado with no common driving force or learning community, we created SMTI to serve as a convener and coordinating vehicle.
- Finding the nation lacks a comprehensive source of information about effective programs and practices to prepare science and mathematics teachers–we are developing one. Our "Analytic Framework," funded by grants from the Carnegie Corporation of New York and the National Science Foundation (NSF) will enable institutional benchmarking and the identification of exemplar practices, supported by evidence.
- Reaching the preparation of 10,000 new teachers annually by 2015 will require more effective institutional sharing and taking to scale exemplar practices. Such scaling has not been accomplished in the past due to a lack of effective dissemination of information, collaborative leadership and coordination, the absence of a coherent model of change, and an academic desire not to repeat anyone else's ideas. SMTI will document leading practices and, working in partnership with participating public research universities; other universities; school systems; state, local and federal governments; as well as the business community, we will greatly extend the impact of locally proven practices to major regions, underserved populations and demographically similar locations.
- Recognizing that enhancing the priority of teacher preparation at individual universities is key, we have teamed with the American Physical Society in an NSF funded Math and Science Partnership to study conditions that promote change in a test group of 26 universities.

- Realizing the strength in learning across universities, SMTI encompasses many approaches. Our coalition of institutions has lead participants in major science and mathematics teacher preparation reform programs. For example:
  - APLU institutions have awarded more than half the NSF Noyce Scholarships to their students since the program began.
  - Eleven of the fifteen UTeach sites, including the originator, the University of Texas, Austin, are SMTI participants.
  - Nine of the twelve NSF funded Physics Teacher Education Coalition (PhysTEC) sites participate in SMTI.

In sum, we are committed to addressing this critical national need for more and better science and mathematics teachers. Through the Science and Mathematics Teacher Imperative we have come together to learn from leading innovative programs, define and assess the quality of our efforts, understand how to better partner with school systems, and challenge ourselves to improve relentlessly our activities.

Mr. President, we ask that you and your Administration continue to provide dedicated leadership to the nation to address these critical concerns in new ways, forming new collaborations. We seek enhanced opportunities to work with your Executive Office on an overall approach, as well as federal agencies. We note for example that your Secretary of Education would like to make his Department a science and mathematics "powerhouse" and we would like an opportunity to help make that happen. The National Science Foundation has been seeking new ways to better integrate research and education, and assisting universities in developing a robust scholarship of science education. The Department of Energy is recognizing the urgent need to support science education, if our citizenry is to understand why and how we might seek more sustainable economy.

And finally, Mr. President, we seek your sustained challenge to us to be more creative, more innovative, and more dedicated in addressing these national challenges. We hope that each time you turn back to us with further encouragement over the course of the next several years; we are working more closely with leaders of your Administration to define how we might better meet our mutual national objectives to retain our high U.S. quality of life and global leadership.

Respectfully,

Andrew Hugine, Jr.
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Lois B. DeFleur
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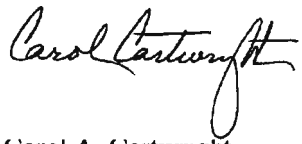

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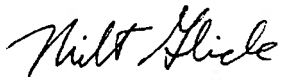

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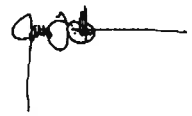

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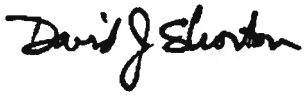

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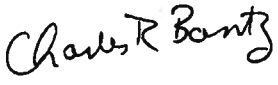

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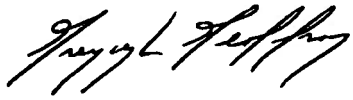

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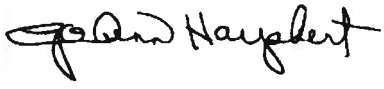

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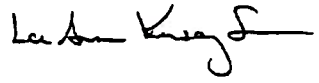

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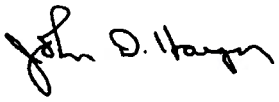

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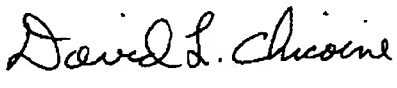

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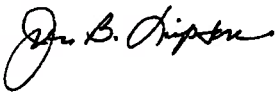

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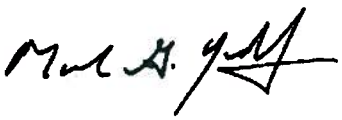

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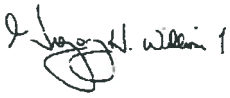

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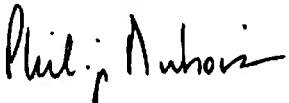

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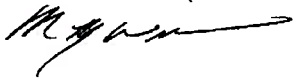

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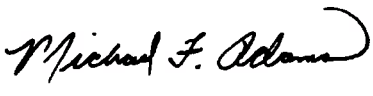

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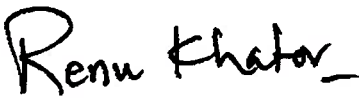

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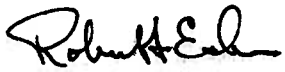

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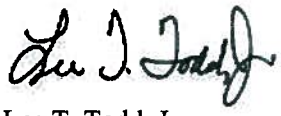

Lee T. Todd, Jr.
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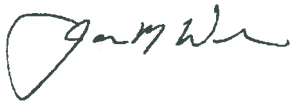

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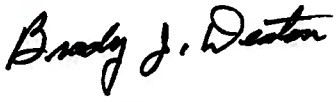

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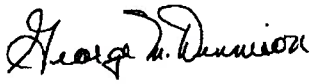

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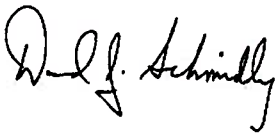

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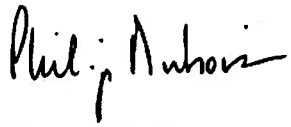

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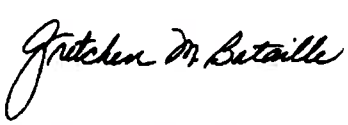

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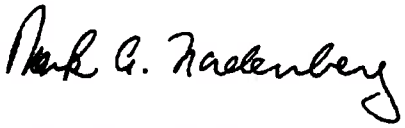

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Erroll B. Davis
Chancellor
University of Georgia System

William E. Kirwan
Chancellor
University System of Maryland

Charles W. Steger
President
Virginia Polytechnic Institute
& State University

Elson S. Floyd
President
Washington State University

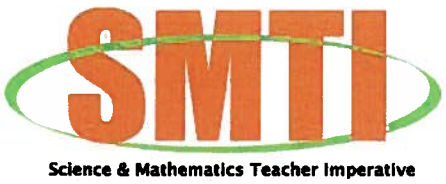
James P. Clements
President
West Virginia University

John M. Dunn
President
Western Michigan University

Donald L. Beggs
President
Wichita State University

David R. Hopkins
President
Wright State University

Attachment – Universities Intending to Double Science and Mathematics Teachers Prepared (chart)




The Association of Public and Land-grant Universities (A·P·L·U) launched the Science and Mathematics Teacher Imperative in November 2008 to increase the number and diversity of high-quality middle and high school science and mathematics teachers in the United States. To meet this goal, SMTI works to galvanize university leadership to action, strategically improve teacher preparation, develop a teacher personnel needs assessment tool, and expand the number of teachers prepared annually at public research universities.

# Universities Intending to Double Science and Mathematics Teachers Prepared

| Systems | Number of teachers produced in Baseline year | Number of teachers produced in Final year |
|---|---|---|
| California State University System* | 768 | 1536 |
| University of California System | 563 | 1126 |
| University System of Maryland | 106 | 374 |
| **Institutions** | | |
| University of Georgia | 91 | 206 |
| California State University, Fullerton* | 54 | 154 |
| Georgia State University | 46 | 150 |
| University of North Carolina at Charlotte | 70 | 148 |
| University of Houston | 43 | 140 |
| San Francisco State University* | 62 | 134 |
| University of Maryland College Park | 31 | 130 |
| Colorado State University | 33 | 117 |
| California State University, Fresno* | 38 | 103 |
| University of South Carolina - Columbia | 24 | 82 |
| California Polytechnic State University, San Luis Obispo* | 13 | 80 |
| Northern Arizona University | 33 | 80 |
| University of Texas at Arlington | 38 | 76 |
| University of South Florida | 31 | 75 |
| University of North Texas | 30 | 70 |
| Virginia Tech | 20 | 63 |
| The University of Memphis | 27 | 60 |
| University of Cincinnati | 29 | 60 |
| University of Kansas | 16 | 60 |
| Florida State University | 28 | 58 |
| Florida International University | 6 | 56 |
| University of Wyoming | 23 | 55 |
| Ball State University | 26 | 53 |
| Boise State University | 15 | 50 |
| University of Colorado Denver | 21 | 50 |
| University of New Mexico | 25 | 50 |
| University of Colorado at Boulder | 20 | 45 |
| University of Illinois at Chicago | 20 | 43 |
| University of Tennessee, Knoxville | 20 | 40 |
| Wichita State University | 16 | 40 |
| University of Utah | 14 | 36 |
| University of Missouri - Kansas City | 13 | 35 |
| University of Idaho | 13 | 34 |
| University of Kentucky | 13 | 32 |
| The University of Montana | 10 | 31 |
| New Mexico State University | 15 | 30 |
| Cornell University | 14 | 28 |
| Indiana University-Purdue University Indianapolis | 10 | 20 |
| Alabama A&M University | 5 | 15 |

The universities implemented their initiatives at different times--with most beginning in 2006-2009 and ending in 2011-2015.

*Institutions which began their initiative in 2003.