



# State Council of Higher Education for Virginia

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# State Council of Higher Education for Virginia

## The International and National Environment

- The United States as a leader
  - Scientific innovation and discovery
  - Model for recruitment of researchers and scientists
- U.S. excellence in discovery and innovation due to an ample and well-educated workforce
- But, things are changing...



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## National Science Board Findings

- The National Science Board, the governing board of the National Science Foundation, has examined these issues and has put forth three major recommendations for action:
  - 1) Support for undergraduate and graduate education on both the national and state level in science, technology, and mathematics subjects is critical
  - 2) Support for student preparation and perseverance is also critical
  - 3) The affordability of a college education can have a major impact on a student's persistence and ultimate success in attaining a degree in a science, technology, or mathematics-related area of study



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## The Virginia Environment



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## The Virginia Environment - Supply

- In Virginia, between 2001 and 2005, the number of enrollees in science, technology, and mathematics-related subjects graduating within three years after choosing their major has not increased significantly:

2000 - 2001	2001 - 2002	2002 - 2003
<b>Biological Sciences</b>	<b>Biological Sciences</b>	<b>Biological Sciences</b>
Enrolled: 7497	Enrolled: 7621	Enrolled: 7882
Graduated in 3 years: 3604	Graduated in 3 years: 3636	Graduated in 3 years: 3639
<b>Computer and Information Science</b>	<b>Computer and Information Science</b>	<b>Computer and Information Science</b>
Enrolled: 6483	Enrolled: 6624	Enrolled: 6198
Graduated in 3 years: 2884	Graduated in 3 years: 2936	Graduated in 3 years: 2907
<b>Mathematics</b>	<b>Mathematics</b>	<b>Mathematics</b>
Enrolled: 1,342	Enrolled: 1267	Enrolled: 1397
Graduated in 3 years: 661	Graduated in 3 years: 670	Graduated in 3 years: 718
<b>Physical Sciences</b>	<b>Physical Sciences</b>	<b>Physical Sciences</b>
Enrolled: 2270	Enrolled: 2244	Enrolled: 2432
Graduated in 3 years: 1194	Graduated in 3 years: 1113	Graduated in 3 years: 1260

\*Data compiled by SCHEV Staff



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The Commonwealth's institutions of higher education have implemented a number of innovative programs to encourage students to enroll in and persevere to a degree in science, technology, and mathematics-related programs



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## Virginia Institutional Response Pre-College Focus

- **James Madison University's** Geospatial Semester allows high school students the opportunity to learn about geospatial technologies, such as geographic information systems (GIS) and global positioning systems (GPS), and use them to address local geospatial problems
- C-Tech (Computers and Technology at **Virginia Tech**) is a two-week summer camp targeted toward high school girls to engineering and related technologies through various hands-on activities, laboratories, and presentations
- **Old Dominion University** is affiliated with the national program, Project Lead The Way, offering college credit to middle and high school students through a four year sequence of math, science and technology coursework



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## Virginia Institutional Response Undergraduate Level – Public Institutions

- Through a National Science Foundation Computer Science, Engineering, and Math Scholarship (CSEMS), **Christopher Newport University** has been able to significantly increase the number of freshman declaring math as a major from five to 22 and the number of students graduating annually with a major in math from seven to 15
- The Dozoretz National Institute for Mathematics and Applied Sciences, established to address the severe shortage of minority scientists by preparing undergraduates to succeed in graduate work in science, is a rigorous honors program for biology, chemistry, computer science, engineering, math, and physics majors at **Norfolk State University**
- **Virginia Commonwealth University's** Project PRISM (Producing Results in Science and Math) is a five-year, \$1.8 million U.S. Department of Education grant to promote academic success and learning outcomes of students in introductory math and science courses





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## Virginia Institutional Response Undergraduate Level – Private Institutions

- **Washington and Lee's** R.E. Lee Research Program provides stipends to students to work over the summer with faculty on research projects in biology, chemistry, computing, math, and other disciplines
- **The University of Richmond** just completed a major undergraduate science initiative, including a \$35 million renovation and addition to its science complex, as well as hiring 15 new faculty, all aimed at increasing the number of science graduates per year by 50%
- **Randolph-Macon College's** Summer Undergraduate Research Fellowship (SURF) program, introduces students to advanced research under the guidance of experienced professors at the college



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## Virginia Institutional Response Public/Private Collaborative Initiatives

- The Mid-Eastern Alliance for Minority Participation (MEAMP) at **Virginia Union University** and **Virginia Tech** is part of the National Science Foundation's Louis Stokes Alliance for Minority Participation which promotes the graduation of minorities in science, technology, engineering, and math
- The Virginia Nebraska Alliance, with a partnership of public and private higher education institutions in Virginia and Nebraska, provides a multitude of academic and research opportunities for minority undergraduates to increase the diversity of the nation's health professionals



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## Where Do We Go From Here?

- Increased focus in counseling for students and their families regarding the value of science, technology, and mathematics-related fields, especially among under-represented populations
- Continued investments in preparation for science, technology, and mathematics-related majors in the K-12 arena
- Continued investments in undergraduate and graduate student financial aid and scholarships, especially for students under-represented in science, technology, and mathematics related fields
- Continued investments in additional faculty, especially research-intensive faculty
- Continued investments in laboratory and research space