Business and Information Technology Fall Webinar
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Presentation Outline

Pre-College Programs Overview

• **Online courses and residential programs**
  • Virginia Space Coast Scholars (VSCS)
  • Virginia Earth System Science Scholars (VESSS)
  • Virginia Aerospace and Technology scholars (VASTS)

• **Residential programs**
  • Pathways Flight Academy

• **Teacher programs**
  • Unmanned System Outreach programs

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National NASA Space Grant Program

**NASA PRIORITIES**
- Aerospace
- Earth and Planetary Science
- Technology
- Education

**STATE NEEDS AND GOALS**
- STEM Education
- Workforce Development
- Research
- Economic Growth
- STEM Education
- Science and Technology
- Workforce Development
- Economic Growth
Virginia Space Grant Consortium

Aerospace and STEM Education, Workforce Development and Research

Members:

• College of William and Mary
• Hampton University
• Old Dominion University
• University of Virginia
• Virginia Polytechnic Institute and State University
• NASA Langley Research Center
• NASA Goddard Space Flight Center’s Wallops Flight Facility
• State Council of Higher Education for Virginia
• Virginia Community College System
• Virginia Department of Education
• MathScience Innovation Center
• Science Museum of Virginia
• Virginia Air and Space Center
• Center for Innovative Technology

Established in 1989.

More than 600 program partners to date.

Each NASA Space Grant dollar typically leveraged by about $6 in other support.

State, National and Regional programs

Work with all Virginia universities, community colleges and school systems.
The Online and Residential Programs for students in grades 10 - 12

• Courses provide interactive online STEM learning experiences
  • NASA related content
  • Science as it relates to the real-world applications
  • Increase STEM knowledge

• Selected students attend a 7-day residential Summer Academy at a NASA Center
  • Students are immersed in NASA-related research through interaction with:
    – Scientists
    – Engineers
    – Technologists
VSGC STEM Programs

Game-Changing Impact: The Whole Package

Meeting

Everybody’s Unmet Needs

The Persistent Value of Soft Critical Skills and Higher-Order Thinking
# Bloom’s Taxonomy

<table>
<thead>
<tr>
<th>Bloom’s Classification</th>
<th>High School</th>
<th>Rating Averages</th>
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<tr>
<td></td>
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<td>VASTS Online Course</td>
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<tr>
<td>Creating</td>
<td>3.66</td>
<td>4.37</td>
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<tr>
<td>Evaluating</td>
<td>3.94</td>
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<td>Analyzing</td>
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<td>Applying</td>
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<td>3.96</td>
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Profile of a Virginia Graduate

The development of core skill sets

- Teamwork large and small groups
  - Communication
  - Collaboration
- Exposure to array of careers
  - Speakers and mentors
  - NASA facility tours
- Opportunities for internships
  - VSGC Summer programs
  - NASA Centers
- Networking opportunities
Geographical Distribution of Scholars since inception

- VSCS Students since 2013
- VASTS Students since 2008
- VESSS Students since 2016

- 100% of State Delegate Districts represented
- 100% of State Senate Districts represented
- 100% of Congressional Districts represented
Virginia Space Coast Scholars (VSCS)

- Program for 10th graders
- Course focuses on NASA, Careers and current missions managed by NASA Wallops Flight Facility (WFF) on Virginia’s Eastern Shore

- Summer Academy offered to high performing course participants
  - NASA Wallops Flight Facility
  - Students design missions supported by WFF

Application typically due in late October
Virginia Earth System
Science Scholars (VESSS)

• Program for 11th and 12th graders
• Course focuses on NASA's major Earth Science missions addressing how the global Earth System is changing, causes, and the societal benefits

• Summer Academy offered to high performing course participants
  • NASA Langley Research Center
  • Students design satellite missions to study impacts on Earth’s dynamic systems.
• Students can earn up to five free dual enrollment college credits.

Application typically due in late October
At NASA students design missions based on the Decadal Surveys

- Tours
- NASA and Industry Mentors
- Speakers
- Presentation of the mission design concept
- Review panel Q&A
  NASA and Industry representatives
Virginia Aerospace Science and Technology Scholars (VASTS)

• Program for 11th and 12th graders
• Course focuses on human space flight.
• Summer Academy offered to high performing course participants
  • NASA Langley Research Center
  • Students design a human mission to Mars
• Students can earn up to five free dual enrollment college credits.

Application typically due in late October
Summer Academy

- Tours
- NASA and Industry Mentors
- Speakers
- Presentation of the mission design concept
- Review panel Q&A NASA and Industry representatives
2020 Virtual Summer Academy

- Webex: ODU Center of distance learning
- Students worked in collaborative design teams.
- Students were mentored by the same NASA and industry experts as previous years
- Virtual Tours
- Presentation of the mission design concept
- Review panel Q and A – NASA and Industry representatives
Master Teachers

- Teacher training at VSGC
- Facilitate online coursework
- Direct interaction with students
- Provide guidance evaluation, feedback, assessment of student work
- Paid as consultants
- We hire high school Science, Math and CTE
Pathways Flight Academies

- Program for High School students
- Explore aviation career fields while learning to fly!
  - Ground School
  - Flight Training
  - FREE intensive residential academy for selected students
  - May culminate in first solo flight!

Application date for Summer 2021 TBA
The primary focus is to help teachers integrate Geospatial and Unmanned Aircraft technologies into the classroom via professional development workshops.

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Questions?

For students currently in grades 8-12

https://vsgc.odu.edu/k-12-education/
Building Leaders for Advancing Science and Technology

- 8th and 9th grade students
- Amplify student interest in STEM classes and careers!
- Residential campus experience
  - ODU, UVA, or VT
- 3 jam-packed summer days of faculty-lead activities and speakers

Application opened November 13, 2020