Virginia Space Grant Consortium

Aerospace Partnerships in Education, Research and Industry

Virginia Earth System Science Scholars (VESSS)

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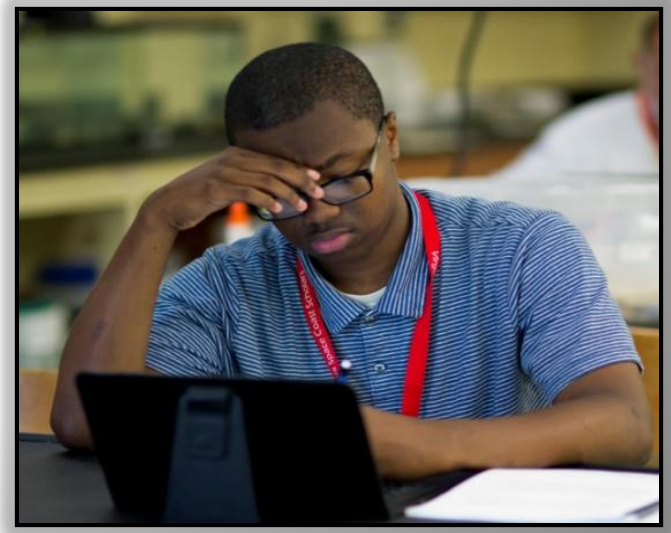
VIRGINIA SPACE GRANT CONSORTIUM

VESSS Overview

- **Geology 195: Earth System Science**
- **Offered through Thomas Nelson Community College**
- **Four dual enrollment college credits underwritten by Virginia Space Grant Consortium**
  - ✓ **Three credits – Online course**
  - ✓ **One credit – Residential Summer Academy**

Who can participate?

- High school juniors and seniors
- U.S. citizens (Summer Academy)
- Virginia residents
- Have internet access



VESSS

- Real world investigations of the Earth and its highly dynamic systems using latest NASA research and data.
- Teaches broad range of STEM concepts
- Fosters the STEM workforce pipeline and STEM related career options

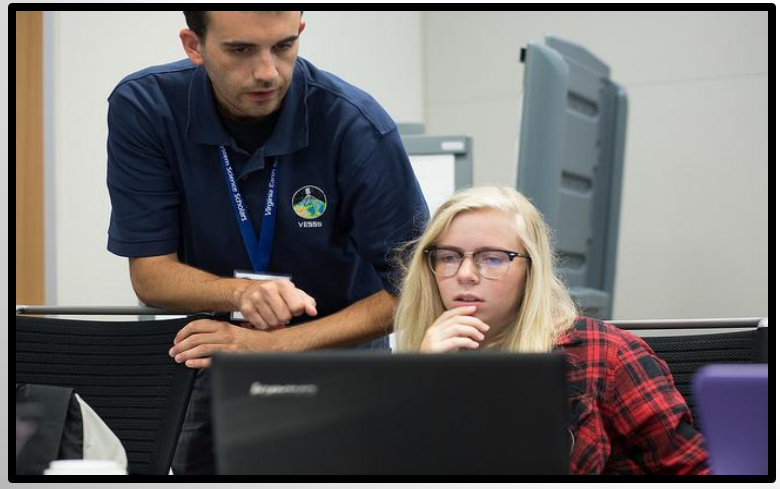
VESSS Online Course

An engaging, NASA-developed online course with Earth System Science theme.

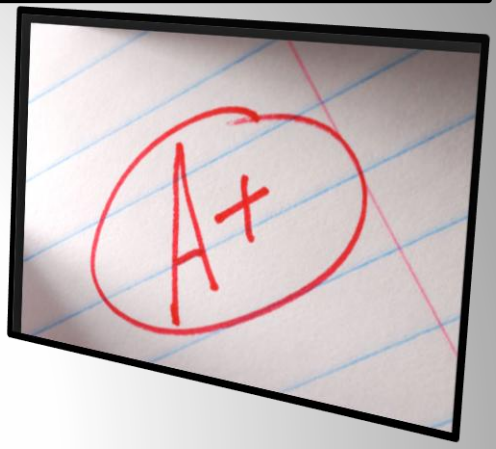
- **7 modules with topics including:**
  - ✓Introduction to Earth Systems
  - ✓Earth in the Solar System
  - ✓Earth and Surface Interior
  - ✓Weather and Water Energy Cycles
  - ✓Climate Variability and Change
  - ✓Ecosystems and Carbon Cycle
- **Comprehensive final project:** Climate Variability

Online Course

Five master teachers funded by Hampton University Center for Atmospheric Research and Education through NASA MUREP Funding.



Master Teachers



- Paid as consultants
- Facilitate online coursework
- Direct interaction with students
- Provide evaluation, feedback, assessment of student work
- Input of student evaluation data into Moodle

Summer Academy

Residential Summer Academy at NASA Langley Research Center.

- Two, One-week sessions at NASA for Summer 2016
- 81 students invited
- 73 students attended
  - ✓ June 25- July 1, 2016
  - ✓ July 16- July 22, 2016

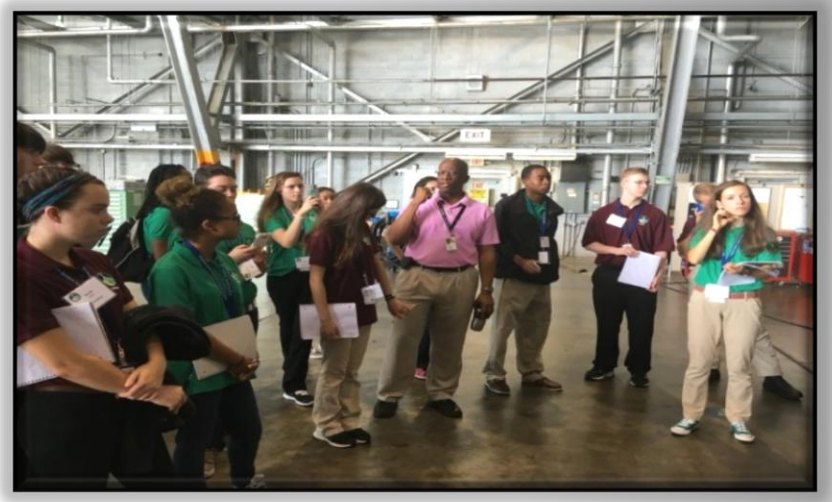
Mission Background

Students designed missions based on Decadal Surveys and the NASA Studies

- **Atmosphere**: Global Pollution in the Pacific
- **Biosphere**: Study the Worst 900 Year Drought in the Mediterranean
- **Hydrosphere**: Causes of Sea Level Change
- **Lithosphere**: Volcanic Eruption

The Best in the Industry

- Scientists
- Engineers
- Astronauts
- Master Teachers
- Undergraduate Interns



Tours

- Contamination Control and Planetary Protection
- The Chemistry and Physics Atmospheric Boundary Layer Experiment (CAPABLE)
- NASA Langley Hangar

Academy Highlights

- Engineering design Challenge
- Mentors
- Virginia Living museum

Mission Team Presentations

- Presentation of the mission design concept
- Review panel question and answer– NASA and Industry representatives

VESSS Experience

- Develop soft skills
- Exposure to a broad array of professionals and careers
- Gain experience working in large project teams
- Professional network

Closing Ceremony

Scholars present their mission to parents, mentors and sponsors

Follow-Up Commitment

- Maintain contact with mentors and fellow scholars
- Help recruit new students to the program
- Maintain contact with VSGC concerning their choice of college, choice of major, and post-graduation plans.

NASA