OFFICE OF EDUCATION AND INTERNSHIPS OVERVIEW

MONICA H BARNES
INTERNSHIPS LEAD/PROJECT MANAGER

COLLEGE OF WILLIAM & MARY
CENTER FOR GIFTED EDUCATION
“FOCUSING ON THE FUTURE” FORUM
FEBRUARY 7, 2015
Langley Historical Video
**Vision:** To be a catalyst for transforming and revolutionizing STEM Education for the Nation.

**Mission:** To maximize NASA’s capabilities to inform, influence, and impact the Nation’s STEM pipeline through creativity, engagement, and innovation.
NASA’s education portfolio will focus on the following four priorities, which will contribute toward the NASA Administration’s goals for STEM education.

- **STEM Engagement**: Provide opportunities for participatory and experiential learning activities that connect learners to NASA-unique resources;

- **NASA Internships, Fellowships, and Scholarships**: Utilize NASA facilities and assets to provide work experiences, research opportunities to improve retention in STEM and prepare students for employment in STEM jobs;

- **Educator Professional Development**: Prepare STEM educators and leaders to deliver quality STEM instruction utilizing unique NASA assets; and

- **Institutional Engagement**: Improve the capacity of U.S. institutions to deliver effective STEM education.
LaRC’s Office of Education Strategic Framework

Advancing the Nation’s STEM Education Today for Tomorrow’s Workforce & Technical Opportunities

**Partner Relations**
- Improve Partnership* Relations
- Formal, Informal, and Non-Traditional Engagement Across Assigned 5-State Region
- Increase Presence Within the LaRC Community
- *Partnerships = Inter/Intra-Agency, Academic, Industry, Entrepreneurial

**Technical Excellence**
- Improve STEM Instruction
- Increase & Sustain Youth & Public STEM Engagement
- Enhance STEM Experience for Undergraduates
- Better Serve Underrepresented STEM Groups
- Design Graduate Education for Tomorrow’s STEM Workforce

**Efficient Operations**
- Optimize P/P Skills and Management of Evidence-Based Performance Measures
- Leverage Center/Agency Assets for Education Activities
STEM ENGAGEMENT ACTIVITIES

• ISS Downlinks in Newport News and Williamsburg
• VA STEAM Summer Academy
• Home Educators Association of Virginia Convention
• Homeschool Appreciation Day
• STEM Girls Rock
• Air Force Rockets Camp
• Busch Gardens NASA Days
• VA Living Museum Star Parties Activities
• VA Science Festival Roanoke and Hampton
• Summer of Innovation activities
Internships at NASA Langley are open to high school applicants during the Summer sessions only.

Students must be at least 16 and at the sophomore level at the time of the internship start date.
ELIGIBILITY

• U.S. Citizen

• Must be enrolled full-time in high school, undergraduate, or graduate program at an accredited college or university.

• Applicants transitioning between high school and college or undergraduate and graduate school are eligible if they have graduated within 6 months and can demonstrate enrollment in next-level of academic pursuit.

• Minimum 3.0 GPA is required (no rounding). GPA is based on the current institution cumulative GPA. If no GPA is available, the cumulative GPA from the previous institution is considered.

• Must be a minimum of 16 years old and a sophomore when the internship begins.
CRITERIA

• Multiple sessions each year
• Full or Part-time available
• Fall & Spring (16 weeks)
• Summer (10 weeks)
• Year-long
PAST PROJECT EXAMPLES

- Spacecraft & Mission Modeling and Simulation
- IT Tools and Methods Development
- Aerospace Vehicle Design
- Space Launch System Aerodynamics
- Machine Intelligence During Unmanned Flights
- Technology Marketing and Communications
- Autopilot Software Development & Testing
- Graphics Design and Program Administration
HOW TO APPLY

• Visit the One Stop Shopping Initiative (OSSI) website at intern.nasa.gov
• Click on “Internships”
• Click “Log in/Register”
• Register and complete the student profile
• Complete the application
• Connect and submit the application for up to 15 opportunities at various Centers

• DEADLINE: Summer Session (June 1 - August 7) applications accepted until March 1, 2015.
Questions about internships at Langley Research Center?

Contact Program Coordinators
Jaedda Hall – Jaedda.A.Hall@nasa.gov
Carley Hardin – Carley.A.Hardin@nasa.gov
Or
Internships Lead
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EPD ACTIVITIES

• Norfolk City Schools Gifted Teachers EPD
• VA School Counselors Engineering Workshop Series
• VMI STEM Education Conference
• MODSIM Workshop with Radford University
• MODSIM Workshop with Longwood University
• Pre Service Teacher Institute
• STEMtastic Teacher Workshop
• NASA Digital Learning Network
NASA LANGLEY RESEARCH CENTER

INSTITUTIONAL ENGAGEMENT
Space Act Agreements:
• New Horizon’s Governor’s School for Science and Technology
• Virginia STEAM Academy
• Longwood University
• Radford University

Industry Partnerships:
• Engineering Career Days (Peninsula Engineering Council, Newport News Shipbuilding, Jefferson Labs, Christopher Newport University
• NASA Awareness in Charlotte at CIAA
• Cobb Cinebistro – Various EPD, Outreach Activities
Additional Partnerships:

- **NASA ESTEEM** (Earth Systems, Technology, and Energy Education for MUREP-Minority University Research and Education Project) featured in Office of Science Technology and Policy (OSTP) White House Fact Sheet as an exemplary project for climate literacy.

- NASA Innovations in Climate Education-Tribal (NICE-T) Cooperative Agreement.

- Tri-Agency Climate Education Catalog (TrACE) features 200+ resources from NASA, NSF, and NOAA.

- “Ask US” (Useful Science) Professional Development Series (free resource) reached over 1400 educators last year.
HUNCH (High School Students United with NASA to Create Hardware)

- Engineering Directorate (Tammy Cottee, Tim Woods)
- New Horizons Governors School CTE
- International Space Station Destiny Model (current project)

Career Pathways Program

- Early career opportunities for students and recent graduates to become federally employed
NASA Postdoctoral Program (NPP)

- Supports NASA’s goal to expand scientific understanding of the Earth and the universe in which we live.

- Selected by a competitive peer-review process, NPP Fellows complete one- to three-year Fellowship appointments that advance NASA’s missions in earth science, heliophysics, planetary science, astrophysics, space bioscience, aeronautics and engineering, human exploration and space operations, and astrobiology.

- Subsequently, NPP Fellows contribute to national priorities for scientific exploration, confirm NASA’s leadership in fundamental research, and complement the efforts of NASA’s partners in the national science community.
NASA’s Digital Learning Network™ (DLN) provides science, technology, engineering, and mathematics (STEM) content featuring NASA missions and research. Register for free, interactive events listed in our catalog, or watch our DLiNfo Webcast Channel.

- ISS downlinks celebrating our first decade
- Connections with Subject Matter Experts

- Virtual Field Trips
- Educator Professional Development and Student Programs with NASA Content
Exemplary Yearly Activity
- completed over 3500 events
- served nearly 12,000 educators
  and more than 100,000 students
  across the US
  all through video and web
  Conferencing technologies
Virtual Educator Professional Development

Expanding opportunities to educate and inspire teachers

The Office of Education offers interactive and engaging virtual 2-way connection workshops and webinars providing hands-on standards-based NASA-inspired activities **customized to the needs of classroom teachers.**

- Tailored to **SOLs** in a wide variety of topics
- Flexibility with teachers’ schedules
- Direct interaction with NASA Education Specialist
- **NO COST!!**
Virtual Educator Professional Development Pending Opportunities

R2R is a curriculum of engaging, hands-on NASA activities that enable students and teachers to understand the STEM of aerospace research and its similarities to the science of racing.
Benefits of Day of Education:

- Students & teachers interact with NASA employees engaged in STEM careers
- STEM careers made real for the students
- Inspiration from NASA missions can affect future choices (college, careers)
- Greater community awareness of STEM (AIAA, Shipyard, Jefferson Lab, CNU)
The S’COOL Project involves participants from around the world in real science through making and reporting cloud observations matched to satellite overpasses. It serves as a source of validation of CERES cloud retrievals.

Dr. Lin Chambers is the Education champion in the Science Directorate at Langley. Various projects involving scientific research strive to unlock the secrets of Earth’s atmosphere for the greater good, a safer planet, and a better tomorrow.

S’COOL

- The S’COOL Project involves participants from around the world in real science through making and reporting cloud observations matched to satellite overpasses.
- Serves as a source of validation of CERES cloud retrievals.

- Atmosphere, Hydrology, Soil, Phenology, & Land Cover Observations
- LaRC Scientists Principal Investigators for Contrail & Surface Ozone Protocols
FIRST Lego League: 

For Inspiration and Recognition of Science and Technology

- Teams of 9-14 year olds build/program Lego robots to complete challenges associated with year’s theme
- Value: Realize science & technology in everyday life, develop life skills (critical thinking, problem-solving, personal responsibility), hands-on interactive learning, strong correlation to national science and technology standards
- Goal – Get children excited about science and technology while learning

FLL Components:

- Robot Performance: Autonomous 2.5 minute rounds to earn as many points as possible
- Design Judging: Demonstrate mechanics, innovation and programming to judge panel
- Core Values Judging: Complete teamwork challenge and discuss gracious professionalism
- Research Project Judging: Present research, problem and solution in creative/fun way
Wide variety of hands on engineering and STEM opportunities for local schools:

- Science Fair Judging
- Career Days (with Peninsula Engineers Council)
- NASA Langley Day of Education (with NASA)
- Middle School Essay Contest
- High School Scholarship
- Hands-on Engineering activities for K-12 classes
- AIAA Educator Associates (free for teachers – lesson plan resources, grants available)
Langley Educator Coordinators Committee (LECC) Members

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www.nasa.gov/education

Additional Partners:
Karen Berger
VA/DC FLL Regional Tournament Coordinator
Hampton Roads Section AIAA K-12 STEM Outreach Co-Chair

Dr. Elizabeth B Ward, Day of Education Education & Outreach
Aeronautics Research Directorate

Eileen Nelson, NASA Postdoctoral Program

Dr. Lin Chambers
Senior Scientist, Science Directorate

Chris Giersch (Education & Outreach, Space Technology and Engineering Directorate

Mary Sandy, Director & Chris Carter , Deputy Virginia Space Grant Consortium

Shelley Spears, Education and Outreach National Institute of Aerospace