NASA’s Education Resource Center
A Model for Inspiring, Engaging, and Employing Students in Rural Appalachia

Todd Ensign, Ed.D.
Fairmont State University - Katherine Johnson IV&V Facility
Fairmont, West Virginia, USA
Recognition of Sponsors

NASA
NASA West Virginia Space Grant Consortium
STEM Initiative Enterprises
NASA's IV&V Program
Robotics Alliance Project
West Virginia Department of Education
High Technology Foundation
Building a Stronger West Virginia
MARS 2020
The Alliance
Business and Community for Public Schools
A3L Federal Works
ASTRO
Engility
Southwestern Energy
Southern West Virginia Robotics Club
High Rocks
Aladdin
CSRA
The IV&V Facility tests mission critical software and manages risk including cyber-security.

Funding for the ERC Program for over 20 years!
Fairmont State University

- Administers the ERC grant while maximizing the impact on WV educators and students
- 17% indirect only on Salary and Benefits (Off-Site rate)
- Non-profit FSU Foundation handles charitable donations
The NASA / FSU ERC Team

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AmeriCorps Volunteer
West Virginia
The Mountain State
West Virginia
Our Challenges

- 38th in population and we are losing our youth faster than any state.
- 7th highest poverty rate in the US.
- 1st in Opioid related deaths.
NASA’s Office of STEM Engagement!

STEM Engagement Goals:

1. Strengthen public understanding of NASA’s missions.
2. Build a diverse future STEM workforce.
3. Create unique opportunities for students.
- Science Public Outreach Team
- STEM Day in the Park
- NASA School Visits
- Student Workshops
- Educator Professional Development
- Space Flight Design Challenge
- STEM Competitions
- Summer Camps
- Summer Internships
- Year Round Internships
- Space Grant Internships
• Science Public Outreach Team
• STEM Day in the Park
• NASA School Visits
School Programs

- Bottle Rocket Competitions
- Science Public Outreach Team (SPOT)
STEM Carnivals and Festivals

• Annual Day in the Park
• NASA Day
• Maker Festival
• Student Workshops
• Educator Professional Development
Student Workshops

- Robotics, Rocketry, Space Weather, 3D printing, Weather and Climate...
Educator Workshops

• Partnership between NASA and Fairmont State University.
• Over 1,000 teachers trained annually!
• Certified to borrow Classroom Kits...
Classroom Kits

• Over 60 classroom kits of LEGO® robots, multiple portable planetariums, 3D printers, GPS and much more that are loaned to trained educators.
• This program impacts **10,000-15,000** WV students per year.
Engage

- Space Flight Design Challenge
- STEM Competitions
- Summer Camps
Robotics Summer Camps

• 6 locations across the state.
• Hundreds of students engaged
STEM Competitions

• We train coaches and run over 40 tournaments a year for 14 STEM competitions covering robotics, rocketry, cybersecurity, and aviation.
• In 8 years Robotics teams alone have increased from 75 to over 500.
• Competitions now engage well over 5,000 students annually!
NASA IV&V ERC and FSU assumed management of FIRST LEGO League in 2012. At that time there were 3 competitive programs in West Virginia with approx. 75 teams and 500 students engaged. In May 2019, our team managed 12 programs with over 500 teams engaging in excess of 5,000 students.
Statewide Program Through Partnership Building

- Bluefield State, Bluefield
- BridgeValley CTC, S. Charleston
- Challenger Learning Center, Wheeling
- James Rumsey, Martinsburg
- MARS, Morgantown
- RCBI, Bridgeport
- New River CTC, Lewisburg
- RCBI, Huntington
- Shepherd University, Shepherdstown
- WVSDB, Romney
- WVU-P, Parkersburg
- WVU-Tech, Beckley
- Fairmont State University, Fairmont
• Individualized, self-paced, online.
• 2018: WV Pilot with 2,290 students at 20 schools
• 2019: 3,034 students at 34 schools
International Robotics Tournaments

• Mountain State Invitational, FIRST LEGO League
• West Virginia Robotics Extreme, FIRST Robotics
Increasing Diversity

• Sponsor all-girls teams
• Robotics for at-risk youth
• Schools for Deaf and Blind.
• Partnerships to reach rural and economically challenged parts of our state.
Science Public Outreach

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Employ
Benefits of FIRST/VISTA

• Helping kids
• Supporting teams
• Living Stipend
• Health Insurance (optional)
• Advantage when applying for government jobs
• End-of-service stipend
Internships

• High School and College Level
• Summer and Year-Round
• Pathways Program leads to a job at NASA!
Questions?

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