Southwest Virginia STEM Summit

May 7-8, 2015
Blacksburg, Virginia
STEM Summit Agenda

May 7, 2015 • Goodwin Hall, Virginia Tech

5:30 – 6:45 p.m.  Registration, Lobby
6:00 – 6:45 p.m.  Welcome, Foyer
    Host: Sue Magliaro, Director – VT–STEM
    Greetings: Dr. Ben Knapp, Director – Institute for Creativity, Arts, and Technology
                Jonathan Whitt, Executive Director – The Roanoke-Blacksburg Technology Council
    Poster Session and Reception
6:50 – 7:45 p.m.  Evening Keynote Speaker, Room 190
    Dr. Jenifer Corn, Director of Evaluation Programs, Friday Institute at North Carolina State

May 8, 2015 • The Inn at Virginia Tech

7:30 – 8:00 a.m.  Registration
8:00 – 8:15 a.m.  Welcome, Latham BC
    Dr. Timothy Sands, President of Virginia Tech
    Dr. Mark McNamee, Senior Vice President and Provost of Virginia Tech
8:15 – 9:00 a.m.  Morning Keynote Speaker, Latham BC
    Paul Reynolds, CEO of FableVision
9:00 – 9:15 a.m.  Break
9:15 – 10:00 a.m.  Concurrent Sessions
    Fireside Chat with Paul Reynolds, CEO-FableVision, Latham BC
    Innovation Now!, Ellett Valley
    Engaging Students in STEM with Mechatronics, Duck Pond
    Developing Creative Partnerships for Pathways from K-12 to Higher Education to Career, Solitude
    STEM for All, Smithfield
    STEM School Designations, Drillfield
10:00 – 10:15 a.m.  Break
10:15 – 11:00 a.m.  Concurrent Sessions
    Virginia Science Festival Roundtable, Latham BC
    Experiential I-STEM Education: Technology Student Association for Middle and High School Students, Ellett Valley
    STEM:UP Elementary Enrichment and High School Student Leadership Academy, Duck Pond
    STEM @ NRCC, Solitude
    Placing an Emphasis on Partnerships, Smithfield
    STEM is Alive and Great in Southwest Virginia, Drillfield
11:00 – 11:15 a.m.  Break
11:15 a.m. – 12:00 p.m.  Concurrent Sessions
    Virginia STEM Hub Initiative, Latham BC
    Breaking New Ground, STEM Lab for Agriculture, Ellett Valley
    YEA! Young Entrepreneurs Academy, Duck Pond
    Developing Creative Partnerships for Pathways from K-12 to Higher Education to Career, Solitude
    Promoting STEM with Virginia Career VIEW, Smithfield
    STEM Project-based Learning at Virginia Western Community College, Drillfield
12:00 – 1:15 p.m.  Buffet Lunch, Latham BC
    Greetings: Senator Mark R. Warner
    Luncheon Speaker: Dr. Megan Healy, Assistant Vice Chancellor for Academics at the Virginia Community College System
1:15 – 1:30 p.m.  Next Steps and Evaluation
1:45 – 2:30 p.m.  Optional – Post Conference Admission Session, Drillfield
Jenifer O. Corn, Ph.D.
As the Director of Evaluation Programs at the Friday Institute for Educational Innovation at North Carolina State University, Dr. Corn serves as Principal Investigator of several large, statewide evaluation and research studies of innovations in diverse educational contexts, including leading the evaluation of initiatives funded under North Carolina’s Digital Learning Plan, Race to the Top grant and Golden LEAF STEM Initiatives. Dr. Corn completed her doctorate in Curriculum and Instruction with an emphasis in Instructional Technology in May 2008 at North Carolina State University.

Paul Reynolds is the CEO and Co-Founder of Boston-based FableVision, which creates and distributes original educational media, mobile games and apps designed to move the world to a better place. Paul has helped build the multimillion-dollar firm into an internationally recognized multimedia developer and publisher, with partnerships, strategic alliances and clients across many industries - broadcast, museum, institutional, K12, educational publishing, technology and research. As CEO, Paul also oversees the company’s K12 edtech publishing group FableVision Learning, as well as The Reynolds Center for Teaching Learning & Creativity. Paul has collaborated with a wide range of media, museum, research and broadcast partners who are seeking a better way to reach learners and inspire life-long learning, including PBS KIDS, National Academy of Sciences, The Jim Henson Company, MIT Education Arcade, CDC, New York Hall of Science, Columbia University School of Social Work, Girl Scouts of the USA, Houghton Mifflin, Pearson, and Carnegie Hall. When he’s not entrenched in all things FableVision, Paul teaches digital media production at Boston College, where he has served as adjunct faculty for over two decades. Paul is also a children’s book author who collaborates with his twin brother and NY Times #1 Best-Selling Author/Illustrator, Peter H. Reynolds Their most recent books include Going Places, a picture book about creativity and engineering, and a STEM-meets-Arts (STEAM) early chapter book series called Sydney & Simon: Full STEAM Ahead!

Dr. Megan Healy is currently the Assistant Vice Chancellor for Academic Services for the Virginia Community College System. She oversees all academic programs which include: developmental education, distance learning, STEM, career and technical, transfer and dual enrollment for all 23 community colleges in Virginia. In her previous role, she was the Virginia Director of STEM in the Office of Governor McAullife. During her tenure as Director, Dr. Healy focused on increasing the number of Virginians that were globally competitive in the science, technology, engineering, mathematics and health fields. Virginia STEM aimed to build a strong STEM-H workforce and education pipeline, initiate communication among all stakeholders, and develop and institute promising practices. Dr. Healy received her B.S. from Virginia Tech in Animal Sciences, her M.S. from Virginia Commonwealth University in Health and Movement Science, and her Doctorate from Old Dominion University in Community College Leadership.
P-1 The M in STEM: Mathematical Investigations at Kids' Tech University

Kids' Tech University invites leading researchers to spend a morning sharing their work with middle school students. Following this interactive session the students visit the computer clusters at the Math Emporium, where they investigate the mathematics related to the morning’s presentation. Recent topics include diabetes, eye vision, and plant disease.

Brett Montague and Holly Grant
Virginia Bioinformatics Institute

P-2 VEX Robotics

VEX Education is dedicated to providing engaging and fun student experiences that enable individuals to reach their full potential while they develop the knowledge and skills vital to success in the 21st Century. The VEX Robotics Design System offers students an exciting platform for learning about areas rich with career opportunities spanning science, technology, engineering and mathematics.

Pattie Cook, Ellie Nave, and Marissa Ray
VEX Robotics

P-3 Reinventing ROSIE

With the “Reinventing Rosie Initiative”, science and beauty team up to promote the “new face” of women working in non-traditional careers by modeling positive regard and respect for both sides of our brain. Science and beauty industry sponsors working together to provide more meaningful opportunities while breaking down biases for young women in the future.

Mary Ann Conroy
Conroy International

P-4 SEEDS - Blacksburg Nature Center

A collaboration between the Virginia Tech Department of Biological Sciences, SEEDS, and the Town of Blacksburg Department of Parks and Recreation to provide engaging preK-12 STEM exhibits and activities for New River Valley communities.

Michael Rosenzweig, Department of Biological Sciences

P-5 CALS Graduate Extension Scholars: Connecting Youth in Virginia to Cutting-edge Research through Building Educational Partnerships

Through collaborative partnerships with secondary and non-formal agricultural educators, graduate students in the College of Agriculture and Life Sciences at Virginia Tech develop educational modules based on their research. 2014-15 modules are appropriate for both school-based and out-of-school-time settings and include topics such as: biofuels, plant pathogens, silvopasture, and horticulture.

Hannah Scherer, Martin Battaglia, John Herlihy, Rachel Mack, and Gabriel Pent
Agricultural, Leadership, and Community Education

P-6 Differences in Delivery of the Engineering Design Process Among Science Professional Development Sites

With the release of the Next Generation Science Standards, science educators are now expected to teach engineering content and practices within science curricula. This study presents findings from a statewide science professional development project regarding the differences among teachers’ pedagogical practices when taught the engineering design process by science educators versus engineering educators.

Tyler Love, Virginia Initiative for Science Teaching and Achievement
Michael Grubbs, School of Education

P-7 STEM at the Museum/STEM on the Go

To summarize STEM engagement opportunities offered by the Science Museum of Western Virginia. These opportunities are aimed at a variety of age groups from pre-K to adulthood and span a number of different STEM topics. The poster highlights six of our most popular programs both within the museum walls, and beyond.

Derek Kellogg and Hannah Weiss
Science Museum of Western Virginia

P-8 Nature of Science and Engineering Design Process

Amy Bordeaux, Anita Deck, John Richardson, and Kristi Flack
Virginia Initiative for Science Teaching and Achievement

P-9 Virginia Tech's K-12 Outreach Initiative

Sue Magliaro, Casey Bailey, Jeanny Gilpin, and Andrae Hash
VT-STEM

P-10 Kindergarten-to-College: Inspiring Our Children for the Future

Sue Magliaro, Casey Bailey, Jeanny Gilpin, and Andrae Hash
VT-STEM

P-11 STEM for Education in Southwest Virginia

Penny McCallum, Southwest Virginia Higher Education Center

P-12 Southwest Virginia Higher Education Center Youth STEM

Alicia Young, Debbie Hensley, and Kathy Hietala
Southwest Virginia Higher Education Center

P-13 Growing 4-H Science

Sarah Morton and Kathleen Jamison, 4-H

P-14 VA 4-H in Motion!

Kathleen Jamison, 4-H

P-15 Transfer Student Pathways to Engineering Degrees

Andrae Ogilvie, Engineering Education

P-16 STEM Success Through Outreach, Recruitment, and Retention Experiences

Cynthia Hampton, Engineering Education

P-17 Virginia Aviation and Space Career and Workforce Implementation Plan

The Virginia Tech Office of Economic Development, in collaboration with private and public sector partners, is creating a plan for enhancing the aviation and space workforce in Virginia, including an assessment of STEM-related programming opportunities.

Scott Tate, Virginia Tech Office of Economic Development
Patrick Burke, Urban and Regional Planning
Latham BC

Fireside Chat with Paul Reynolds, CEO-FableVision
Paul Reynolds, FableVision, CEO
This session offers an informal follow-up discussion for those interested in getting information from the morning’s keynote address.

Ellett Valley

Innovation Now!
Tom Brewster, Superintendent of Pulaski County Schools
Yvonne Thayer, Consultant on STEM and Workforce Development
This session will present Pulaski County Public Schools’ development of a strategic action plan to address CTE, STEM, and preK-12 career readiness needs.

Duck Pond

Engaging Students in STEM with Mechatronics
Sara Gerrol, Technical Education, Salem High School
Dan Horine, Program Head, Mechatronics, Virginia Western Community College
Terry Drumheller, Regional Academy and Special Programs, Coordinator, Virginia Western Community College
We will explore what mechatronics is and the pathway students will need to take to have a career in mechatronics. This session will also explain the Mechatronics NSF Grant – Pace Me – and how others may get involved.

Solitude

Developing Creative Partnerships for Pathways from K-12 to Higher Education to Career
Liesl Baum, Research Assistant Professor, Institute for Creativity, Arts, and Technology, Virginia Tech
Patty Gaudreau, Supervisor of Science, Health, and Physical Education, Montgomery County Public Schools
Rick Weaver, Supervisor of Career and Technical Education/Business Partnerships, Montgomery County Public Schools
Jamie Simmons, Montgomery County Public Schools Liaison, Institute for Creativity, Arts, and Technology, Virginia Tech
Montgomery County Public Schools and Virginia Tech are exploring creative activities that build interest in STEM-related careers. Students begin exploring in elementary school and grow to eventually participate in the Governor’s STEM Academy at the high school level. Our partnership brings in higher education experiences for both students and staff in all Montgomery County Schools. Presenters will share the current state of the new STEM academy and highlight the unique school-university partnership designed to enrich student experiences and broaden perspectives of STEM pathways.

Smithfield

STEM for All
Jason Suhr, Principal of Burton Center for Arts and Technology, Director of Career and Technical Education & Adult Education, Roanoke County Public Schools
Mark Jones, Coordinator of Career and Technical Education, Roanoke County Public Schools
Steve Allen, Technology Education, Hidden Valley High School
Participants will learn how Roanoke County Public Schools is using Career and Technical Education (CTE) to incorporate STEM education with a variety of students. Exemplary models will be reviewed, including use of 3D printing and UAV technologies.

Drillfield

STEM School Designations
Anita Deck, Curriculum Specialist, Virginia Initiative for Science Teaching and Achievement, School of Education, Virginia Tech
STEM Education is one strategy North Carolina is using to build a world-class workforce that leads to graduation and postsecondary education. In this session, we will examine the NC STEM School/Program Implementation Rubric and the STEM Attributes which describe characteristics of high quality STEM elementary, middle, and high schools.
May 8 • Concurrent Sessions (continued)

10:15 a.m.

Latham BC

Virginia Science Festival Roundtable

Phyllis Newbill, Associate for Outreach and Engagement, Institute for Creativity, Arts, and Technology

Presenter will share vision and plans for the Virginia Science Festival 2015. Participants will have the opportunity to shape the future of the festival.

Ellett Valley

Experiential I-STEM Education: Technology Student Association for Middle and High School Students

John Wells, Associate Professor of Technology & Integrative STEM Education, Virginia Tech
Stephanie Parker, Associate Professor of Technology & Integrative STEM Education, Virginia Tech

Integrative STEM Education formal/informal experiential learning discussed in the context of Middle/High School Technology Student Association (TSA) technological/engineering design challenges. I-STEM-ED experiential learning demonstrated using a middle school Design Based Biotechnology Literacy exemplar. Main emphasis on informal experiential STEM learning through middle/high school student involvement in regional, state, and national TSA technological/engineering design challenges.

Duck Pond

STEM:UP Elementary Enrichment and High School Student Leadership Academy

Annie Whitaker, Director of Curriculum & Instruction
Ruthanne Cole, Lead Teacher, STEM-UP
Laura Radford, Lead Teacher, STEM-UP
Linda Rosenbaum, Teacher, Bland County Public Schools
Shellie Hartley, Student Leadership Academy Teacher, STEM-UP
Joel Kearns, Technology Center Manager, ABB Group
Hallie Ramsey, Student, Bland County High School
Emily Hill, Student, Bland County High School

The Bland County STEM-UP program focuses on enrichment and leadership. Our Student Leadership Academy provides leadership training to high school students while they gain hands-on experience and mentor elementary students. During this presentation you will have the opportunity to participate in STEM-UP activities while hearing from our business partners from ABB, lead teachers, and student leaders.

Solitude

STEM @ NRCC

Peter Anderson, Dean of Business and Technologies, NRCC
Carlotta Eaton, Professor of Information Technology, NRCC
David Filer, Associate Professor of Information Systems, NRCC
Jeff Levy, Instructor of Drafting, NRCC

New River Community College (NRCC) believes in fully integrating technology in everything we do! Join us for the latest instructional strategies, capstone courses and service projects that students call a success.

Smithfield

Placing an Emphasis on Partnerships

Ross Matney, Career and Technical Education Administrator for Pulaski County Public Schools and STEM Director, Pulaski County Governor’s STEM Academy

This session will provide an overview of the Governor’s STEM Academy at Pulaski County High School, the importance of obtaining and maintaining partnerships, current business and education partners, and accomplishments/struggles.

Drillfield

STEM is Alive and Great in Southwest Virginia

Penny McCallum, Director, Virginia Tech Southwest Center
Debbie Hensley, Business Manager, Southwest Virginia Higher Education Center
Kathy Hietala, Assistant to Executive Director, Southwest Virginia Higher Education Center
Alicia Young, Grants Administrator, Southwest Virginia Higher Education Center

STEM means excitement, challenges, exploration, competition and learning in southwest Virginia. This session will present a variety of STEM programs for children grades 6-8; teens grades 9-12 and educators grades PreK-12. We will share information about Lego Robotics, 6th Grade Girls’ STEM Conference, Project Real and Kids’ Tech University. For educators, we will share a Summer STEM Institute for PreK-12 Educators, “Learning Across Virginia” and a grant to assist mathematics teachers.
May 8 • Concurrent Sessions (continued)

11:15 a.m.

Latham BC

Virginia STEM Hub Initiative
Sue Magliaro, Professor, Educational Psychology; Director, VT-STEM; Co-PI VT-VISTA, Virginia Tech

In this session, participants will discuss efforts to advance a potential state-wide STEM hub network.

Ellett Valley

Breaking New Ground, STEM Lab for Agriculture
Mark Burnette, Carroll County Public Schools
Dwayne Huff, District Director, New River Soil and Water Conservation District
Rachel Rasco

Carroll County High School’s STEM Lab for agriculture may be the first of its kind in the nation. The combination of a dedicated STEM lab equipped with the latest research tools and equipment and a dedicated 65 acre farm both operated by the school's agriculture department allows students to learn scientific protocols to assist farmers in meeting higher food safety standards.

Duck Pond

YEA! Young Entrepreneurs Academy
Peggy White, Executive Director, Pulaski County Chamber of Commerce
Tom Brewster, Superintendent of Pulaski County Schools
Jim Flowers, Executive Director, V.T. Knowledge Works
Michael Solomon, Economic Development, Pulaski County

This session will introduce the YEA program, explain its significance among schools, discuss the importance of developing and cultivating entrepreneurs at a young age, and the impact of the program on communities.

Solitude

Developing Creative Partnerships for Pathways from K-12 to Higher Education to Career
Liesl Baum, Research Assistant Professor, Institute for Creativity, Arts, and Technology, Virginia Tech
Patty Gaudreau, Supervisor of Science, Health, and Physical Education, Montgomery County Public Schools
Rick Weaver, Supervisor of Career and Technical Education/ Business Partnerships, Montgomery County Public Schools
Jamie Simmons, Montgomery County Public Schools Liaison, Institute for Creativity, Arts, and Technology, Virginia Tech

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Smithfield

Promoting STEM with Virginia Career VIEW
Michelle Seibert, Director, Virginia Career VIEW

Virginia Career VIEW, Virginia’s K-8 Career Exploration system, provides a wealth of creative resources for students, parents, and professionals to promote STEM Subjects and STEM Careers. Take a virtual trip through our website and find out what resources would work best for your school!

Drillfield

STEM Project-based Learning at Virginia Western Community College
John Anderson, Academic Dean of STEM, VWCC
Dan Horine, Program Head, Mechatronics, VWCC
Amy White, Assistant Professor, Biology, VWCC
Stacie Deaver, Biology Instructor, VWCC
Ashley Gess, Instructor, VWCC
George Studtmann, Faculty, Assistant Professor, VWCC

The School of STEM at Virginia Western Community College (VWCC) has begun the integration of project-based learning in engineering, biology, biotechnology, and even in the college success skills course (SDV) that all incoming students must take. A team of instructors from the School of STEM teaches the SDV course, focused on the theme of a green roof. This session will cover other topics, such as, maker spaces, biosynthesis, and water quality.