



# 42<sup>nd</sup> Annual Summer Institute

HOSTED BY

**EMBRY-RIDDLE**  
Aeronautical University.  
DAYTONA BEACH, FLORIDA

June 17-22, 2018



## K-12 Educator & STEM Pipeline Diversity Summit

### Schedule of Activities



**EMBRY-RIDDLE**  
Aeronautical University.  
DAYTONA BEACH, FLORIDA





Dear SECME Summer Institute Participants:

Welcome to the world's oldest and most prestigious aviation and aerospace university. The College of Engineering at Embry-Riddle Aeronautical University's Daytona Beach campus is pleased to host SECME's 42<sup>nd</sup> Annual Summer Institute and to welcome educators, students, and SECME Alliance partners attending the event.

Embry-Riddle is a dynamic institution whose mission is to graduate technically-competent and socially-aware men and women who will be the next generation of industry leaders, innovators and entrepreneurs. We teach nearly every aspect of aviation, aerospace, engineering, and related fields, engaging students in real-world applied research that prepares them for productive careers and leadership roles in industry, government, and academia.

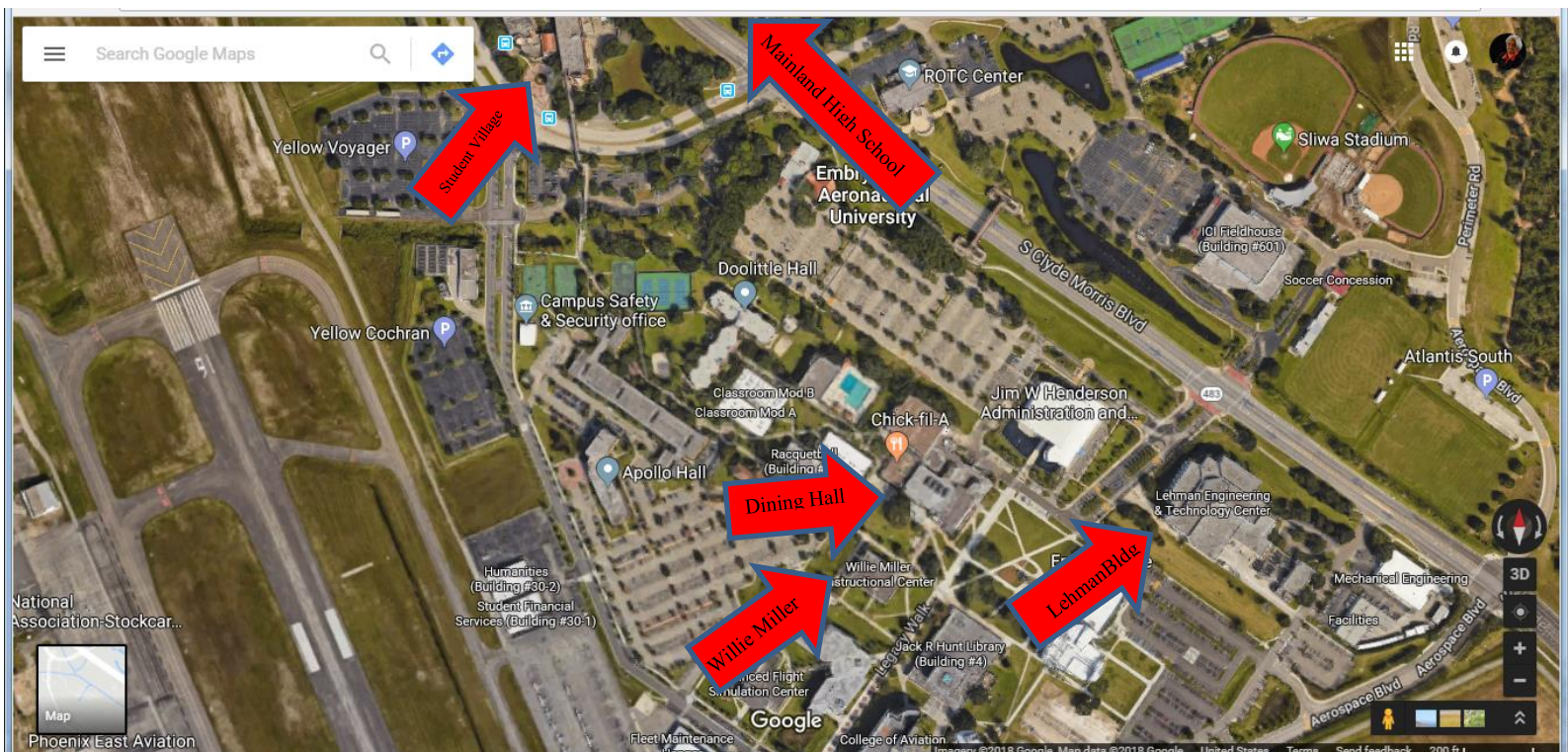
Over the decades we've evolved into the global leader in aviation and aerospace education. We are constantly striving to meet the needs of our students and our industry and are proud of our achievements in all areas, including our Diversity Initiatives. Our partnership with SECME is one of the strategies we employ to make Embry-Riddle a friendly, inclusive place for all of our students, faculty, and staff.

I invite you to explore all ERAU has to offer. This is a special place for people with a passion for aeronautics, space, and aviation. We hope to ignite that passion in you and your students, as you discover the exciting research, cutting edge technology and innovative student projects that our engineering students and faculty are involved in. Enjoy your stay!

Sincerely,

Dr. Maj Mirmirani

Dean, College of Engineering



**Week-At-A-Glance**  
**2018 SECME STEM Pipeline Diversity Summit**

<b>Tuesday, June 20</b>	<b>Wednesday, June 21</b> Official Summit Check-In Day	<b>Thursday, June 22</b>	<b>Friday, June 23</b>
<p>8:00 AM - 4:45 PM  <b>Optional: Hands-On STEM Modules –</b>  (Campus - See Institute Experience Schedule for Classrooms)</p> <p>4:00 PM - 6:00 PM  <b>Early Summit Check-In</b>  Hotel Lobby</p> <p>7:00 PM  <b>Optional Evening Activities</b></p>	<p>8:00 AM – 12:30 PM  <b>Summit Check-In</b>  Hotel Lobby</p> <p>8:00 AM – 12:15 PM  <b>Optional: Hands-On STEM Modules</b>  (Campus - See Institute Experience Schedule for Classrooms)</p> <p>11:00-12:30  <b>Box Lunch</b></p> <p>1:30 – 4:30  <b>Summit Workshops</b>  ERAU, Willie Miller Bldg</p> <p>5:30  <b>Dinner on Your Own*</b></p> <p>*All-Inclusive Summit Participants  <b>Dinner on Campus – Student Center</b></p> <p>6PM  University Council Dinner &amp; Meeting</p> <p>Hampton Inn</p>	<p>7:00 – 7:45 AM  <b>Breakfast on Your Own</b></p> <p>7:45 – 8:00  <b>Hotel Van to for Campus Venue</b></p> <p>8:00-11:30  <b>Summit &amp; Educator Concurrent Workshops</b>  (Campus - See Institute Experience Schedule for Classrooms)</p> <p>11:45 12:30  <b>Lunch, Campus Cafeteria</b></p> <p>1:00 PM – 5:30 PM  <b>SECME National Student Competition</b></p> <p>Mainland High School</p> <p>6:30 PM – 10:30 PM  <b>Evening of Elegance Teacher of the Year Celebration</b></p> <p>Museum of Arts &amp; Sciences</p>	<p>7:00 AM – 9:00 AM  <b>SECME Board of Director's Meeting</b></p> <p>9:00 AM – 10:15 AM  <b>Master Teacher Potpourri</b></p> <p>10:30 AM – 12:15 PM  <b>STEM Summit Brunch &amp; Keynote</b></p> <p>12:30 PM – 2:45 PM  <b>Summit Workshops</b></p> <p>3:00 PM – 4:00 PM  <b>Celebration of Student Success</b></p> <p><b>SECME-ExxonMobil Scholars and Competition Awards Ceremony</b></p> <p>4:30 PM  <b>Check-Out</b></p>

## K-12 Educator Comprehensive Schedule

### Sunday, June 17

10:30AM-5:00PM	<b>Arrivals &amp; Check-Ins</b> <b>Embry-Riddle Student Village</b> <b>**Boxed Lunches available 12-2</b>
2PM – 5PM	<b>Walmart or Target Runs</b> <b>SECME Van</b>
5:30 PM	<b>Dinner</b>  (Student Center Cafeteria )

### Monday, June 18

7:30-8:30	<b>Breakfast</b> <b>Student Center Cafeteria</b>			
Module 1 8:45-9:45	<b>SECME Opening &amp; Welcome</b> <b>Willie Miller Auditorium</b>			
				<b>Leadership Strand</b>
Module 2 10:00-12:00	<b>How small is Nano: You have now entered the NanoZone</b>  Michael & Alicia Curry Willie Miller Room 103	<b>FOCUS ON SECME Secondary</b>  Manuel Cox Lori Dunklin  Willie Miller Room 203	<b>FOCUS ON SECME Elementary</b>  Judy Wall-Townsend Kimberly Worrell  Willie Miller Room 204	<b>TAKING YOUR SECME PROGRAM TO the NEXT LEVEL</b>  Kisha Jarrett Michele Williams  Willie Miller Room 102
12:15 – 1:15	<b>Lunch</b> <b>Student Center Cafeteria</b>			
Module 3 1:30 – 4:30	<b>Legos in Perspective X</b>  Kenton Wesby  Willie Miller Room 103	<b>VEX EDR Robotics Engineering Design</b>  Manuel Cox  Willie Miller Room 203	<b>Beginning Mousetrap Car Engineering Design</b>  Dawn DeWitt  Willie Miller Room 204	<b>We are on A Roll</b>  Belinda Hart  Willie Miller Room 104
Module 4 4:45-5:30	<b>Professional Learning Network Meetings (PLNs)</b>  Willie Miller Rooms to be assigned			
5:45	<b>Dinner</b> <b>Student Center Cafeteria</b>			
7PM	<b>Optional Activity, Student Village</b>			



Tuesday, June 19				
7:00-7:45	Breakfast Student Center Cafeteria			
				Leadership Strand
Module 5 8:00-10:00	<b>Multiplication Using Patterns</b>  <b>Anil Antony</b>  Willie Miller Room 103	<b>The Nano-Effect</b>  Michael & Alicia Curry  Willie Miller Room 203	<b>A World In Motion</b> <b>Motorized Toy and Cybersecurity Challenges</b> <b>Module</b>  Ken Francis, SAE  Willie Miller Room 204	<b>Can Students Think Critically and Solve Problems?</b>  Lori Dunklin  Willie Miller Room 102
Module 6 10:15-12:15	<b>Edutainment for Your Classroom</b> <b>Jeanette Barott, ERAU</b>  Lehman Building Room 333	<b>It's a Nano World !</b>  Michael & Alicia Curry Willie Miller Room 203	<b>Plant Power: Cultivate Your Curriculum with Container Gardens</b>  Judy Wall-Townsend Willie Miller Room 204	<b>Did you Say Challenge ?</b>  Kisha Jarrett  Willie Miller Room 102
12:30-1:15	Lunch Student Center Cafeteria			
Module 7 1:30-4:30	<b>Animation as a Platform for Teaching STEAM</b>  <b>Jeanette Barott, ERAU</b>  Lehman Building Room 333	<b>Advanced Mousetrap Car Engineering Design</b>  <b>Dawn DeWitt</b>  Willie Miller Room 203	<b>VEX IQ Robotics</b>  <b>Kimberly Worrell</b>  Willie Miller Room 204	<b>How to Make Online Student Portfolios</b>  <b>Amy Garcia</b>  Willie Miller Room 102
5:00	Dinner Student Center Cafeteria			
7:00 – 8:30	<b>Optional Activity</b> <b>Escape Game</b> <b>Student Village Lobby</b>			

**Wednesday, June 20**

7:00-7:45	Breakfast Student Center Cafeteria				
Module 8 8:00-10:00	Engineering Design SECME Style  Lori Dunklin  Willie Miller Room 103	Programming with Modkit for VEX IQ  Kimberly Worrell Willie Miller Room 203	Water Rockets!  Kisha Jarrett  Willie Miller Room 204	Parent Involvement: The 3000 Series! How to Ensure Children Love Learning Tracy Payne  Willie Miller Room 104	
Module 9 10:15-12:15	JUNIOR SOLAR SPRINT An AEOP Solar Car Competition, Part 1  Willie Miller Room 203	Is Nano in My Home?  Alicia & Michael Curry  Willie Miller Room 103	Computer Science Unplugged!  Bobby Jeanpierre, UCF Willie Miller Room 102	NASA Virtual Workshop  CONTENT vs. CONTEXT: Viewing Your Content Through a NASA Context  Willie Miller Room 204	
12:30-1:15	Lunch Student Center Cafeteria				
Module 10 1:30-4:30	JUNIOR SOLAR SPRINT An AEOP Solar Car Competition, Part 2  Willie Miller Room 203	Hybrid Electric Vehicles 101 & EcoCAR Lab Tour  Anthony Howard, GM  Willie Miller Room 103	Legos in perspective X  Kenton Wesby  Willie Miller Room 204	Using Games to Teach  Lori Dunklin  Willie Miller Room 102	STEM Summit & Leadership SECME – The Key to Your STEM Initiatives  Willie Miller Room 201
Module 11 4:45-5:30	Professional Learning Network Meetings (PLNs) Willie Miller Rooms TBD				
5:45	Dinner Student Center Cafeteria				
6:30 PM-9:30 PM	Optional Evening Activity Vans to the Beach *Last van leaves the beach at 9:30 PM Sharp!				

**Thursday, June 21**

<b>7:00-7:45</b>	<b>Breakfast</b> <b>Student Center Cafeteria</b>				
	<b>Summit/K-12</b>	<b>Summit/K-12</b>	<b>Summit/K-12</b>	<b>Summit/K-12</b>	<b>Summit/Leadership</b>
<b>Module 12</b> <b>8:00-10:15</b>	<b>Beach Balls and Noodles: A Hope-Slope Connection</b>  Sheria Enahora  Willie Miller Room 103	<b>Science Time!</b>  Kisha Jarrett  Willie Miller Room 203	<b>Solar Ovens</b>  Beatriz Berriz-Castro  Willie Miller Room 204	<b>Maker Space within Your Classroom</b>  Alicia & Michael Curry  Willie Miller Room 102	<b>Preparing Diverse Students for Engineering at General Motors &amp; Other Technical Careers</b>  Anthony Howard  Willie Miller Room 104
<b>Module 13</b> <b>10:30-11:30</b>	<b>Developing Excellently Funny Problem Solving Skills</b>  Sheria Enahora  Willie Miller Room 103	<b>She can be a Chemist Engaging Girls</b> <b>Nishawn Stovall</b>  Willie Miller Room 102	<b>Exploring Nano-surface Area with the Mad Scientist</b>  Alicia & Michael Curry  Willie Miller Room 203	<b>Vocabulary Vision</b>  Judy Wall-Townsend  Willie Miller Room 204	<b>Ava Rosales Show Me the Money</b>  Willie Miller Room 104
<b>11:45 – 12:30</b>	<b>Lunch</b> <b>Student Center Cafeteria</b>				
<b>Module 14</b> <b>1:00-5:30</b>	<b>SECME National Student Competition Finals</b> <b>Mainland High School Gymnasium</b>				
<b>6:00- 7:00 PM</b> <b>Buses Depart &amp; Loop</b>	<b>Evening of Elegance</b> <b>Teacher of the Year &amp; Awards Banquet</b> <b>Museum of Arts &amp; Sciences</b>				

**Friday, June 22**

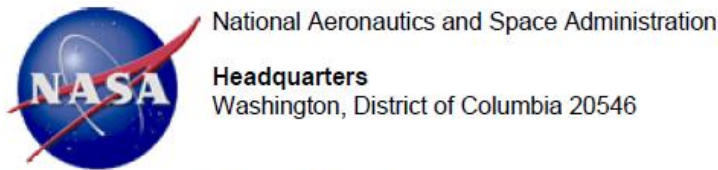
<b>7:00 AM</b>	<b>SECME Board of Director's Meeting</b> (Board Members Only) Hampton Inn Daytona Speedway-Airport			
<b>Module 15 9:00-10:15</b>	<b>Master Teacher Potpourri (All Participants)</b>  Henderson Lobby Atrium			
<b>Module 16 10:30-12:15</b>	<b>STEM Pipeline Diversity Summit Brunch &amp; Keynote</b> Henderson Ballroom			
<b>Module 17 12:30-1:30</b>	<b>Educating Engineers for a Sustainable Future: Can we get there from Here?</b>  Jeff Brown, ERAU Willie Miller Room 102	<b>Introduction to 3D Technologies</b>  Dr. C. Gribbins, ERAU  Lehman Building Rm 132	<b>Flipped!</b>  Jessica Keegan  Willie Miller Room 203	<b>Building a Successful SECME Program</b>  Jennifer Borges & Kisha Jarrett Willie Miller Room 204
<b>Module 18 1:40 – 2:40</b>	<b>K-12 Professional Learning Network Meetings (PLNs)</b>  Willie Miller, Rooms TBA			<b>STEM Summit 3....2...1 LAUNCH!</b> <b>Next Steps for University and K-12 SECME Partners 204</b>
<b>3:00-4:00</b>	<b>Celebration of Student Success ExxonMobil Scholar and National Competition Awards Presentations</b> Willie Miller Auditorium			
<b>4:00 ....</b>	<b>Check-Out and Departures</b>			
<b>4:30</b>	<b>Dinner - Student Center Cafeteria</b>			



# STEM Pipeline Diversity Summit Brunch

## Keynote Speaker

Astronaut, Benjamin Alvin Drew, Jr.



### ***Biographical Data***

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## **NASA DEPARTMENT OF DEFENSE LIAISON MANAGER**

### **EDUCATION:**

1980 St. Aloysius Gonzaga College High School in Washington, DC  
1984 Bachelor of Science in Astronautical Engineering from the United States Air Force Academy  
1984 Bachelor of Science in Physics from the United States Air Force Academy  
1995 Master of Aerospace Science from Embry Riddle Aeronautical University  
2006 Master of Strategic Studies from the United States Air Force Air University

**U.S. AIR FORCE EXPERIENCE:** Upon graduation from the Air Force Academy, Drew entered the U.S. Air Force as a Second Lieutenant in May 1984. He completed Undergraduate Helicopter Pilot Training at Fort Rucker, Alabama, earning a helicopter qualification and his pilot wings. His initial assignment was as a combat rescue helicopter pilot, and he subsequently transitioned into USAF special operations. There he flew 60 combat missions in operations over Panama, the Persian Gulf and Northern Iraq. Afterwards, he returned to flight training – first qualifying in jet aircraft, and then, becoming a test pilot, at the United States Naval Test Pilot School. He subsequently worked as a project test pilot, commanded two flight test organizations and served on the U.S. Air Force *Air Combat Command* headquarters staff. Finally, Drew served on detail to the NASA Astronaut Corps, for the remainder of his Air Force career. As a Command Pilot/Astronaut Mission Specialist with more than 26 years' on active duty, Colonel Drew retired from the Air Force in October 2010.

**NASA EXPERIENCE:** NASA selected Drew, to train as an astronaut mission specialist, in July 2000. Prior to, and between his space flights, he provided technical support to the Astronaut Office and worked in the Houston Mission Control Center as a CAPCOM—the voice relay between the flight control team and crews in space, for Space Station and Space Shuttle missions. As a Space Shuttle crewmember, he logged 612 hours in space--on Space Shuttle missions STS-118 and STS-133, including 12 hours 48 minutes accumulated time on two spacewalks. Between his first and second space shuttle flights, he was the NASA Director of Operations at the *Yuri Gagarin Cosmonaut Training Center* in Star City, Russia. Since his last space flight, he has worked as NASA's *Deep Space Habitat* project manager and NASA Liaison for Space Security, and on the White House *Office of Science and Technology Policy* staff. He currently serves at NASA Headquarters as the NASA Interagency Liaison Manager to the Department of Defense.

## **FLIGHT INFORMATION**

Ratings: Command Pilot-Astronaut, Parachutist

Flight hours: More than 4,000

Aircraft flown: Over 30 different types including the H-3 (*Jolly Green Giant* Helicopter), the H-60 (*Pave Hawk* Helicopter), T-38 (*Talon* Jet), OV-105 (Space Shuttle *Endeavour*), and OV-103 (Space Shuttle *Discovery*)

## **SPACE FLIGHT EXPERIENCE:**

STS-118 (August 8 - 21, 2007): The 119th space shuttle flight, the 22nd flight to the International Space Station (ISS), and the 20th flight for the space shuttle *Endeavour*. Added an electric receptacle--for docked shuttles to plug into electrical power from the ISS, a truss segment, a replacement attitude control gyroscope and an *Express Logistics Carrier* (ELC) external stowage pallet to the International Space Station. The mission included four spacewalks, the delivery 5,000 pounds of equipment and supplies to the station and the return of 4,000 pounds of hardware and equipment back to Earth. The flight traversed 5.3 million miles (202 orbits) in space over 12 days, 17 hours, 55 minutes and 34 seconds.

STS-133 (February 24 - March 9, 2011): The 39th and final mission for the space shuttle *Discovery*. Installed the *Permanent Multipurpose Module* (PMM) interior stowage compartment and the fourth *Express Logistics Carrier* (ELC) external stowage pallet to the ISS. Delivered critical spare components and *Robonaut 2*, the first android robot in space. The mission included two space walks outfitting the truss of the station and a variety of other tasks to modernize the ISS. The flight traversed 5.3 million miles (202 orbits) over 12 days, 19 hours and 3 minutes.

## **PROFESSIONAL MILITARY EDUCATION:**

1990 Squadron Officer School at the United States Air Force Air University

1997 Air Command and Staff College from the United States Air Force Air University

2006 Air War College at the United States Air Force Air University

## **PROFESSIONAL TRAINING:**

1985 USAF Undergraduate Pilot Training-Helicopter, Fort Rucker, Alabama

1993 USAF Fixed Wing Qualification Course, Vance AFB, Oklahoma

1994 United States Naval Test Pilot School, Patuxent River NAS, Maryland

1998 Acquisition Program Manager Course, Fort Belvoir, Virginia

2000 Astronaut Candidate Training, Johnson Space Center, Texas

**ORGANIZATIONS:** Society of Experimental Test Pilots, American Helicopter Society, Association of Space Explorers, Jolly Green Giants [Combat Rescue], U.S. Air Force Academy Association of Graduates.

## **HONORS, MAJOR AWARDS AND DECORATIONS**

Honorary Doctor of Science (PhD) from Abertay University

Defense Meritorious Service Medal

Meritorious Service Medal with 2 oak leaf clusters

Air Medal

NASA Spaceflight Medal (2)

Aerial Achievement Medal with 5 oak leaf clusters

Air Force Commendation Medal with 2 oak leaf clusters

Air Force Achievement Medal

[View Col. Drew's full bio here](#)

NOTES:



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