Student Programs 2016-2017

The Ruth Patrick Science Education Center’s K-12 Student Programs offerings for 2016-2017 will be posted online on April 15, 2016. Teachers will be able to select from 53 different hands-on, inquiry based classroom programs aligned to state standards. We recommend that teachers coordinate field trips with their grade level, and combine 2 or 3 programs in one visit. A teacher may bring up to 60 students for a “double” group or up to 90 students for a “triple” group.

Teachers may download program descriptions, standards correlations, reservation request forms, and more at http://rpsec.usca.edu/student/.

Reservation requests may also be submitted online. Print brochures and request forms will be mailed only to those teachers who have reserved programs in the last three years. Request forms may be mailed to the RPSEC or faxed to (803) 641-3615.

Teachers may request up to 4 programs for the school year but, pending funding, this number may be reduced—so please prioritize your requests. Last year we received many more requests than we were able to serve. We will schedule teachers’ requests, subject to availability, in the order specified on the reservation request form.

The deadline to submit reservation requests is Friday, June 10, 2016 at 5:00 PM. Due to the volume of anticipated requests; it is highly unlikely that late requests will be filled. Requests received after June 10th will be placed on a waiting list. Thank you for your understanding.

2016 - 2017 STUDENT PROGRAMS TIMELINE

Friday, June 10th
Deadline to submit Student Programs Requests for 2016-2017.
Confirmation contract letters will be mailed to teachers’ home addresses no later than mid July.

Tuesday, September 6th
Deadline to return signed Confirmation Contract Letters to the RPSEC

Friday, September 9th
All unconfirmed 2015-2016 student programs will be cancelled and filled from the wait list

Monday, September 12th
RPSEC Student Programs classes begin
The Ruth Patrick Science Education Center is continuously working to update current Discovery and Planetarium Programs along with developing new offerings to best serve our students and teachers. Check out our updates for the 2016-2017 school year!

**Kid Pix (Grades 1 & 3)**

Get your creative juices flowing as we explore “KidPix” in our MAC computer lab classroom. Students will make art, math and science connections as they use the KidPix toolbox to draw lines, shapes, colors, and patterns as well as dipping into the paint bucket, paintbrush, stamps and eraser tools.

**Sun & Shadows (Grade 1)**

Students will conduct investigations that help them discover how the Sun appears to move, how shadows change over time, and how the angle at which light shines changes the brightness and spread of the light.

**Recycling Resources (Grades 1 & 3)**

Students will investigate ways to help reduce, reuse and recycle our waste. They will work together to deconstruct a landfill, collect data and build graphs to analyze the effects of our trash in the environment!

**We All Live Downstream (Grade 5)**

Students will discover the amount and importance of available water on Earth through a series of hands-on activities. They will also work together to develop a piece of “riverfront” property exploring how watersheds affect not only our water source but populations downstream.

The RPSEC will be offering a series of monthly programs for home school students in the spring of 2017. The programs will be held on selected Monday afternoons from January through May. Different programs will be offered each year with a 3-year rotation cycle. Reservation request forms will be available online by September 2016, and will also be mailed to families who signed up for Home School Mondays 2016.

One Monday per month, each child will attend (2) one-hour, back-to-back science or math programs at the RPSEC.

- Over the course of the spring semester, each child will attend a total of 10 programs.
- The children should arrive at 1:00. The programs will begin at 1:15 and end at 3:30 PM.
- The two programs for the younger students (Grades K-3) will be held at the same time as the two programs for the older students (Grades 4-8).
- Please note that children under the age of 4 are not permitted to attend any student programs (planetarium or classroom programs) at the RPSEC.

The cost is $35 per student for the Home School Mondays 2017 series, provided the student is registered and pre-paid by the listed deadline. After the registration deadline, an additional fee of $15 per student will be charged, and we cannot guarantee that we will be able to accommodate late requests.
Teachers will be able to select from a variety of exciting hands-on inquiry-based programs that are grade specific and aligned to state standards. Programs include soil studies, wildlife adventures, plant explorations, pond investigations, and much more! A STEP visit includes 3 one-hour activities all addressing the chosen program topic: lab study, field study and a hike (unless otherwise stated) with a half hour for a picnic lunch. A typical schedule is 9:15 AM - 1 PM. Shorter visits can be accommodated. Hear what some teachers have been saying about their STEP Field Trip this year: an Aiken Elementary teacher said, ”My students loved all the hands on experiences that were provided. All instructors were great and explained things at their level.” A teacher from Millbrook said: “Today was informative and hands-on with very knowledgeable presenters.” A teacher from Mossy Creek said: “Perfectly aligned with standards. Very hands-on, kids loved digging, looking at soil, and nature hike.” A teacher from North Augusta Middle said: “Great day. Kids enjoyed activities and hands on science!”

The Science and Technology Enrichment Program (STEP) is a cooperative effort between Savannah River Nuclear Solutions, Silver Bluff Audubon Center, and the Ruth Patrick Science Education Center. Two field trip locations for STEP include the Savannah River Site and the Silver Bluff Audubon Center. Both sites have indoor classrooms, beautiful forests with miles of trails, lovely ponds and a variety of resident wildlife. Program offerings for 2016-2017 will be posted online on April 15, 2016. For program information and a STEP reservation request form, please visit the STEP website at: http://rpsec.usca.edu/step/. Reservation requests may be submitted online, mailed to the RPSEC or faxed to (803) 641-3615. The deadline to submit reservation requests is June 10 at 5:00 PM.
FAMILY EARTH AND SKY NIGHT

Celebrate National Astronomy Day and Earth Day with an evening of fun and learning at the Ruth Patrick Science Education Center. A variety of free, hands-on activities will be offered from 6:30 to 9:30 p.m., and our planetarium show *Engineering the International Space Station* will be presented at 7:00, 8:00, and 9:00 p.m.

When: May 14, 2016
Where: Ruth Patrick Science Education Center at USCA
What: Hands-on activities, planetarium shows, and night sky viewing
Hosted by: The Astronomy Club of Augusta (ACA), the DuPont Planetarium, the Ruth Patrick Science Education Center and USC Aiken

HANDS-ON ASTRONOMY AND EARTH DAY ACTIVITIES!

Explore the wonders of earth and space science, make items to take home, and interact with live animals such as snakes, turtles, alligators, and owls.

PLANETARIUM SHOWS

*Engineering the International Space Station* will be presented on a first-come, first-served basis with start times of 7:00, 8:00, and 9:00pm. Ticket prices: Students 4K-12th $3.00, Adults $5.00, Seniors $4.00, USCA Affiliates $1.00.

TELESCOPE EXPLORATION

Once it gets dark, the observatory will open for viewing through the Bechtel Telescope, and amateur astronomers will set up other telescopes on the lawn. Weather permitting, see details in the Moon, visible planets and other celestial objects that are invisible to your unaided eyes. Members of the Astronomy Club of Augusta will orient you to the night sky: naked-eye, binocular, and telescopic. They will help you find many fascinating heavenly bodies with their telescopes or with your own. This is a good opportunity to learn the most important constellations and stars, and how to star hop from one to another.
Public Shows

**DUPONT PLANETARIUM SCHEDULE**

**August 2015 - August 2016**

<table>
<thead>
<tr>
<th>DATES</th>
<th>SHOW NAMES</th>
<th>SHOW TIMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 August 1, 8, 15, 22, 29</td>
<td><strong>Worlds in Motion</strong></td>
<td>8:00 pm 9:00 pm</td>
</tr>
<tr>
<td>2015 September 5, 12, 26</td>
<td><strong>Ancient Sky Lore</strong></td>
<td>7:00 pm 8:00 pm</td>
</tr>
<tr>
<td>2015 September 19</td>
<td><strong>Observe the Moon Night</strong></td>
<td>7:00 and 8:00 pm</td>
</tr>
<tr>
<td>2015 October 3, 17, 24, 31</td>
<td><strong>Mission to Mars</strong></td>
<td>7:00 pm 8:00 pm</td>
</tr>
<tr>
<td>2015 October 10</td>
<td><strong>S.E.E.D.</strong></td>
<td>10:00, 11:00, 12:00, 1:00, 2:00, 10:30, 11:30, 12:30, 1:30, 2:30</td>
</tr>
<tr>
<td>2015 November 7, 14, 21, 28</td>
<td><strong>Engineering the International Space Station</strong></td>
<td>7:00, 8:00 and 9:00 pm</td>
</tr>
<tr>
<td>2015 December 5, 12, 14</td>
<td><strong>Season of Light</strong></td>
<td>7:00 and 8:00 pm</td>
</tr>
<tr>
<td>2015 December 19, 21, 28</td>
<td><strong>Season of Light</strong></td>
<td>6:00, 7:00 and 8:00 pm</td>
</tr>
<tr>
<td>2016 January 2, 9, 16, 23, 30</td>
<td><strong>Ancient Sky Lore</strong></td>
<td>7:00 pm 8:00 pm</td>
</tr>
<tr>
<td>2016 February 6, 13, 20, 27</td>
<td><strong>Follow the Drinking Gourd</strong></td>
<td>7:00 pm 8:00 pm</td>
</tr>
<tr>
<td>2016 March 5, 12, 19, 26</td>
<td><strong>Engineering the International Space Station</strong></td>
<td>7:00 pm 8:00 pm</td>
</tr>
<tr>
<td>2016 April 2, 9, 16, 23, 30</td>
<td><strong>In My Backyard</strong></td>
<td>7:00 pm 8:00 pm</td>
</tr>
<tr>
<td>2016 May 7, 21, 28</td>
<td><strong>Larry Cat in Space</strong></td>
<td>8:00 pm 9:00 pm</td>
</tr>
<tr>
<td>2016 May 14 Earth &amp; Sky Night</td>
<td><strong>Engineering the International Space Station</strong></td>
<td>7:00, 8:00 and 9:00 pm</td>
</tr>
<tr>
<td>2016 June 4, 11, 18, 25</td>
<td><strong>Mission to Mars</strong></td>
<td>8:00 pm 9:00 pm</td>
</tr>
<tr>
<td>2016 July 2, 9, 16, 23, 30</td>
<td><strong>Engineering the International Space Station</strong></td>
<td>8:00 pm 9:00 pm</td>
</tr>
<tr>
<td>2016 August 6, 13, 20, 27</td>
<td><strong>Two Small Pieces of Glass</strong></td>
<td>8:00 pm 9:00 pm</td>
</tr>
</tbody>
</table>

All shows last one hour unless otherwise noted. Most shows include a live “sky tonight” portion.

**Special Events**

- Spring Earth & Sky Night and National Astronomy Day: May 14, 2016

**For Planetarium information call:** 803-641-3654
**From Augusta:** 803-278-1967 ext. 3654

More information is available on our website: [http://rpsec.usca.edu/Planetarium/](http://rpsec.usca.edu/Planetarium/)

**Become a Galactic Guardian for 2016**

How would you like to adopt a celestial object and be its Galactic Guardian for a year? There are a number of celestial objects that need a caring person, family or group to look out for their best interests over the next year. Additionally, you will have the opportunity to support programming at the Ruth Patrick Science Education Center with your tax-deductible donation. For more information, please call the main office at 803-641-3313 or email RPSEC@usca.edu.
Camp Invention, the nation’s premier summer enrichment day camp program, supported by the United States Patent and Trademark Office (USPTO) and a product of the National Inventors Hall of Fame (NIHF), is coming to the Ruth Patrick Science Education Center the week of June 13th.

For students entering grades one through six, Camp Invention is a weeklong adventure that will turn the summer from ordinary to extraordinary through hands-on problem solving, using science, technology, engineering and mathematics (STEM).

Camp Invention provides an opportunity for inventive young minds to exercise their creativity and use their imagination in ways they don’t normally get to in the classroom. Program participants do not realize they are learning and developing new skills as they build prototypes, take things apart, explore different types of technology and so much more.

The RPSEC is thrilled to offer Camp Invention to CSRA students for the 10th year. The hands-on curriculum helps to further insert curiosity into a child’s everyday lifestyle. As the need for skilled STEM professionals increases, we believe we are setting our students up for success by offering programs like Camp Invention.

This year’s Camp Invention curriculum is called Epic™, inspired by some of our nation’s most brilliant minds including experienced educators, Inductees of the National Inventors Hall of Fame and developed in partnership with the United States Patent and Trademark Office. Epic™ features hands-on modules like CrickoBot™, where Campers construct and personalize a DIY solar-powered cricket and a unique habitat; Epic Park™, where Campers work in teams to design an eco-adventure park; I Can Invent: Maker Studio™, where Campers brainstorm product ideas and build original prototypes using real tools and components found in everyday devices; and The Lab: Where Pigs Fly™, where children can discover the science of slime, demolition, electronic sound, giant squid and coding.

Learn more about this year’s curriculum and register for Camp Invention by visiting www.campinvention.org.

The Spring into Summer Discount of $15 off is valid until May 10th. Use promo code SPRING. The base price is $220. Every registration includes a complimentary Camp Invention t-shirt. Availability is limited, so visit www.campinvention.org or call 800.968.4332 to secure your child’s spot today!

**USCA and ACPSD employees receive $30 OFF. Please email johnh@usca.edu for a special host district registration form.**
SUMMER STUDENT PROGRAMS

The Ruth Patrick Science Education Center is offering a collection of summer programs for daycares, church groups, scout troops, and groups of 10 or more students. Classes will be held from June through August on Tuesdays, Wednesdays, and Thursdays at 9:15, 10:30, Noon, 1:15, and 2:30.

Group leaders are encouraged to sign up for a block of two or three programs. Each program lasts approximately an hour. Lunch is NOT PROVIDED by the center, but you may bring your own lunches and reserve the cafeteria for seating at no extra cost.

For more information please visit http://rpsec.usca.edu/summer/student/ or call (803) 641-3313.

Join us for a summer filled with explorations, experiments, engineering, and more!

Camp ENGage
Ruth Patrick Science Education Center - USC Aiken
July 18-21, 2016 9am-5pm

More than just another science camp, more than just summer fun, Camp ENGage will empower and encourage the next generation of engineers.

Open to Rising 7th Grade Students
http://rpsec.usca.edu/campENGage/

Sponsored by Savannah River Nuclear Solutions
The Ruth Patrick Science Education Center thanks the following individuals, corporations, and organizations for their generosity and support of our mission by being a Friend of the RPSEC. For information on how you can become a Friend, please call (803)641-3313.

**INFUSERS ($2500 AND UP)**
- BAE Systems Shared Services Inc.
- Border Bash Foundation
- Mr. Jack & Mrs. Ava Hammond
- Rotary Club of Aiken-Sunrise
- Savannah River Nuclear Solutions, LLC
- Wells Fargo Community Relations

**INNOVATORS ($1000-$2499)**
- Augusta Aiken Audubon Society
- Dr. Gary J. & Mrs. Senn
- Ms. Barbara S. Fenstermacher
- I Heart Media
- Dr. Jeff and Mrs. Ellen Priest
- Project Management Institute - Aiken/Augusta Chapter
- SRP Federal Credit Union
- SRS Leadership Association
- WAGT NBC 26 / CW Augusta

**SCIENTISTS ($500-$999)**
- AACEI CSRA Section
- American Society of Civil Engineers, CSRA Branch
- IEEE- Columbia Chapter
- Institute of Industrial Engineers
- ISA Savannah River Section
- Mr. Bruce A. & Mrs. Karen K. Morgan
- National Engineers Week Foundation
- Mr. E. S. & Mrs. Anne B. Sawyer

**ANALYSTS ($250-$499)**
- Ms. Gloria Allen
- ASME Central Savannah River
- Chandler Law Firm
- Mrs. Linda M. & Mr. James M. Ferrell
- Dr. Rose O. Hayes-Fox
- Mr. John Hutchens
- Mrs. Darya R. & Mr. Cory W. McMurtrie, Sr.
- Mr. John Y. & Mrs. Deborah McMurtrie
- SC Society Professional Engineers-Columbia Chapter

**RESEARCHERS ($100-$249)**
- Mr. & Mrs. John Abshire
- Aiken Women’s Club
- Birds and Butterflies of Aiken
- Dr. Randolph J. & Mrs. Charlotte T. Guschl
- Dr. Robert & Dr. Carol Botsch
- Ms. Elizabeth F. Eberhard
- Innovative Solutions
- Mr. J. Rooney Floyd
- Mr. Roderick C. Lee & Ms. Katherine Mason

**SCHOLARS (UP TO $99)**
- Aiken Taekwondo Academy
- Mr. & Mrs. Joseph Blancato
- Mr. & Mrs. Todd Boggs
- Mrs. Bridget Coleman
- Mr. Charles M. Combier
- Dr. Paul and Mrs. Monica Dainer
- Mrs. Elizabeth F. Eberhard
- Mrs. Lizzy Green
- Dr. David W. & Mrs. Sue Harden Hayes
- Dr. David W. Hayes
- Faculty and Staff of the School of Education
- Mr. & Mrs. Irving Freimuth

- Mr. & Mrs. Robert Milardo
- Mr. & Mrs. Robert Moore
- Mr. John & Mrs. Patricia Oakland
- Mrs. Trudy A. & Mr. Terry L. Ortner
- Mr. Joel S. & Mrs. Elaine M. Ray
- Ms. Drucilla Raymond
- Mrs. Jane L. & Dr. Ray B Vaughters JR
The Ruth Patrick Science Education Center is looking for sponsors to help support the cost of feeding and caring for the animals used in our K-12 educational programs. An animal may be adopted by an individual, a business, or a group such as an elementary school class or a scout troop. The sponsors’ names will be displayed on donor recognition kiosks at RPSEC, and they will be recognized in the Center’s publications and website as Friends of the RPSEC. Donations are tax deductible; sponsorship opportunities January through December 2016 are listed below.

For more information, please contact Lizzy Green at ElizabethG@usca.edu or (803) 641-3631.

<table>
<thead>
<tr>
<th>BIRDS</th>
<th>Adoption Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raleigh, Barred Owl (Strix varia) Non-releasable male</td>
<td>Mr. Jack &amp; Mrs. Ava Hammonds</td>
</tr>
<tr>
<td>Lina, Eastern Screech Owl, brown phase (Megascopsasio) Non-releasable female</td>
<td>Dr. Rose O. Hayes</td>
</tr>
<tr>
<td>Charlotte, Eastern Screech Owl, brown phase (Megascopsasio) Non-releasable female</td>
<td>Ms. Barbara S. Fenstermacher</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REPTILES: CROCODILIANS</th>
<th>Adoption Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al, American Alligator (Alligator mississippiensis) male, hatched 2012</td>
<td>Mr. John Hutchens</td>
</tr>
<tr>
<td>Holden, American Alligator (Alligator mississippiensis) male, hatched 2014</td>
<td>Dr. Rose O. Hayes</td>
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<thead>
<tr>
<th>REPTILES: SNAKES</th>
<th>Adoption Information</th>
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<tbody>
<tr>
<td>George, Eastern Kingsnake (Lampropeltis getula getula)</td>
<td>$100</td>
</tr>
<tr>
<td>Betsy, Grey Rat Snake (Elaphe obsoleta splioides)</td>
<td>$100</td>
</tr>
<tr>
<td>Corry, Corn Snake (Elaphe guttata) male</td>
<td>Ms. Kim McKenzie Howell</td>
</tr>
<tr>
<td>Casper, Albino Corn Snake (Elaphe guttata)</td>
<td>$100</td>
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</tbody>
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<thead>
<tr>
<th>REPTILES: TURTLES</th>
<th>Adoption Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romeo, Box Turtle (Terrapene carolina Carolina) male</td>
<td>Mr. Robert &amp; Mrs. Carolyn Moore</td>
</tr>
<tr>
<td>Fatty, Box Turtle (Terrapene carolina Carolina) female</td>
<td>Dr. Joette G. Sonnenberg</td>
</tr>
<tr>
<td>Shelly, Box Turtle (Terrapene carolina Carolina) juvenile</td>
<td>$75</td>
</tr>
<tr>
<td>Durtle, Snapping Turtle (Chelydra serpentina) male</td>
<td>$75</td>
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<tr>
<td>Slim Jim, Red-Eared Slider Turtle (Trachemys scripta elegans) male</td>
<td>$75</td>
</tr>
<tr>
<td>Strut, Chicken Turtle (Trachemys scripta scripta)</td>
<td>Mr. Robert &amp; Mrs. Carolyn Moore</td>
</tr>
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<thead>
<tr>
<th>REPTILES: LIZARD</th>
<th>Adoption Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lizzy, Eastern Fence Lizard (Sceloporus undulates)</td>
<td>Mrs. Beth Eberhard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AMPHIBIANS: FROGS and TOADS</th>
<th>Adoption Information</th>
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</thead>
<tbody>
<tr>
<td>Emerald, Barking Tree Frog (Hyla gratiosa)</td>
<td>Dr. Carol &amp; Dr. Robert Botsch</td>
</tr>
<tr>
<td>Striker, Barking Tree Frog (Hyla gratiosa)</td>
<td>Dr. Carol &amp; Dr. Robert Botsch</td>
</tr>
<tr>
<td>Kermit, Green Tree Frog (Hyla cinerea)</td>
<td>$50</td>
</tr>
<tr>
<td>Buddha, Southern Toad (Bufo terrestris)</td>
<td>$50</td>
</tr>
<tr>
<td>Jumper, Southern Toad (Bufo terrestris)</td>
<td>$50</td>
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<thead>
<tr>
<th>AMPHIBIANS: SALAMANDERS</th>
<th>Adoption Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dottie, Spotted Salamander (Ambystoma maculatum)</td>
<td>$50</td>
</tr>
<tr>
<td>Louie, Tiger Salamander (Ambystoma tigrinum)</td>
<td>$50</td>
</tr>
<tr>
<td>Marley, Marbled Salamander (Ambystoma opacum)</td>
<td>$50</td>
</tr>
</tbody>
</table>
**Galactic Guardians**

How would you like to adopt a celestial object and be its Galactic Guardian for a year? There are a number of celestial objects that need a caring person, family or group to look out for their best interests over the next year. Additionally, you will have the opportunity to support programming at the Ruth Patrick Science Education Center with your tax-deductible donation. For more information, please call the main office at 803-641-3313 or email RPSEC@usca.edu.

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**$400 level:**

1. Milky Way  
   Adopted by Ms. Barbara Fenstermacher
2. Sun  
   Adopted by Mr. Jack & Mrs. Ava Hammond
3. Moon

**Planets:**

4. Mercury
5. Venus
6. Earth
7. Mars
8. Jupiter
9. Saturn
10. Uranus
11. Neptune
12. Pluto (Dwarf $399.99)

**$150 level:**

**Zodiac Constellations:**

13. Virgo
14. Libra
15. Scorpius
16. Ophiuchus  
   Adopted by Dr. Gary J. & Mrs. Senn
17. Sagittarius
18. Capricornus
19. Aquarius
20. Pisces
21. Aries
22. Taurus
23. Gemini
24. Cancer
25. Leo

**$100 level:**

1. Milky Way  
   Adopted by Ms. Barbara Fenstermacher
2. Sun  
   Adopted by Mr. Jack & Mrs. Ava Hammond
3. Moon
4. Mercury
5. Venus
6. Earth
7. Mars
8. Jupiter
9. Saturn
10. Uranus
11. Neptune
12. Pluto (Dwarf $399.99)

**Planets:**

4. Mercury
5. Venus
6. Earth
7. Mars
8. Jupiter
9. Saturn
10. Uranus
11. Neptune
12. Pluto (Dwarf $399.99)

**$100 level: (Continued)**

34. Crux the Southern Cross  
35. Cygnus the Swan, Northern Cross
36. Draco the Dragon
37. Hercules
38. Lyra the Harp
39. Orion the Hunter
40. Pegasus the Flying Horse  
   Adopted by Mr. Levi & Mrs. Brittany Parker
41. Perseus the Hero
42. Ursa Major, Big Dipper
43. Ursa Minor, Little Dipper

**$75 level:**

**Galaxies and Nebulae:**

44. Cat’s Eye Nebula, NGC 6543
45. Cat’s Paw, NGC 6914
46. Crab Nebula, M1
47. Dumbbell Nebula, M27
48. Flame Nebula, NGC 2024
49. Helix Nebula, NGC 7293
50. Horsehead Nebula B33, IC434
51. Horseshoe Nebula, M17
52. Lagoon Nebula, M8
53. Orion Nebula, M42
54. Owl Nebula, M97
55. Pillars of Creation (M16)
56. Ring Nebula, M57
57. Rosette Nebula, NGC 2237
58. Seagull Nebula, IC2177
59. Stellar Spire (M16)
60. Tarantula Nebula, NGC 2070
61. Trifid Nebula, M20
62. Andromeda Galaxy, M31
63. Black Eye Galaxy, M64
64. “Cigar” Galaxy, M82
65. Pinwheel Galaxy, M101
66. Sombrero Galaxy, M104
67. Sunflower Galaxy, M63
68. Tadpole Galaxy, UGC 10214
69. Whirlpool Galaxy, M51

**$50 level:**

**Other Constellations:**

70. Centaurus
   Adopted by Dr. David W. & Mrs. Sue Harden Hayes
71. Cetus the Sea Monster
72. Columba the Dove -
73. Corona the Crown
74. Corvus the Crow
75. Delphinus the Dolphin
76. Lepus the Hare
77. Monoceros the Unicorn
78. Sagitta the Arrow -

**Stars and Star Clusters:**

79. Albireo, a double star -
80. Beehive cluster
81. Alcor & Mizor, double stars
82. Hercules globular cluster -
83. Pleiades, the Seven Sisters
84. Polaris, the North Star -

**Brightest Stars:**

85. Aldebaran  
   Adopted by Dr. Paul and Mrs. Monica Dainer
86. Altair
87. Antares
88. Arcturus
89. Betelgeuse  
   Adopted by Mr. Charles M. Combier
90. Capella
91. Castor
92. Deneb
93. Fomalhaut
94. Pollux
95. Procyon
96. Regulus
97. Rigel
98. SIRIUS
99. Spica
100. Vega
CALL FOR NOMINATIONS

The Ruth Patrick Science Education Center is seeking nominations for the Spirit of Ruth Patrick Award and the Robert E. Alexander Outstanding Administrator of the Year Award. If you know a teacher or school administrator who fits the criteria below, please nominate them for an award. Nominations must be received by May 15, 2016 to be considered for this year’s award. Biographical sheets will be sent to each nominee and the RPSEC Advisory Board will determine the winner. If you have any questions, please call Laura Johnson at 803-641-3313 or contact her by email at LauraJ@usca.edu.

Spirit of Ruth Patrick Award

This award recognizes a teacher in the CSRA who demonstrates a passion for teaching and infusing a love of science, technology, engineering and mathematics. In 1986 the RPSEC was named for Dr. Ruth Patrick, a world renowned scientist who developed a way to test the water quality of the Savannah River while the Savannah River Site was built in the early 1950s.

Robert E. Alexander Outstanding Administrator of the Year Award

This prestigious award recognizes administrators in the CSRA for their efforts and support of bringing full awareness to math and science education and using the resources of the RPSEC to help meet science and math standards. Recipients of the award are also individuals who encourage teachers to work with the RPSEC to develop skills needed for science and math instruction.

Hitchcock Woods Celestine Eustis Essay Contest

Area students are invited to participate in the fifth annual Hitchcock Woods essay contest. The winner receives a cash prize of $500 and his or her name is engraved on a sterling silver trophy. The winner is announced on September 25 at the annual Festival of the Woods.

A panel of judges reviews all entries and selects a recipient whose appreciation of the Woods is in the tradition of Célestine Eustis, who purchased land in the pine forests of Aiken more than 130 years ago. She had a passion for flora and fauna, and loved the serenity of the woods.

Célestine’s niece was Louise Eustis (Mrs. Thomas Hitchcock). She helped to ensure that her family and future generations could enjoy what we know today as the Hitchcock Woods.

Deadline is May 31, 2016

RPSEC Environmental Science Award Presented At the CSRA Regional Science Fair

The 2016 CSRA Regional Science and Engineering Fair was held on March 12, 2016 at USC Aiken. There were nearly 200 projects from CSRA schools displayed at the fair. Each year, the RPSEC presents an environmental science award in honor of Dr. Ruth Patrick. Dr. Patrick pioneered work in the study of fresh water ecosystems and developed methods for measuring the health of these systems.

This year, the RPSEC Environmental Science Award was presented to Devon Bowler, Cameron Wilson, Kirill Khasanshin, Sam Dong, India King from Davidson Fine Arts Magnet School. The title of their project was “Water Chemistry.”

The chemistry of water can be tested through a series of tests. Nebulosity is determined by the appearance of the sky and number of clouds. Dissolved Oxygen is the small amount of oxygen dissolved in water, which is breathed by fish and other aquatic animals and determines their survival. The higher the temperature, the less dissolved oxygen. The pH determines how acidic or basic a sample of water is. On a scale of 0-14, 0-6 being acidic, 8-14 being basic, with 7 being neutral. Water is considered to be the most common neutral liquid. Conductivity measures the ion concentration by measuring water’s ability to conduct electricity. A Secchi Disk is used to determine the turbidity of water. The Turbidity is how clear the water is. These tests are all determinants when it comes to what can and cannot survive in a body of water.

Several factors determine the qualitative factors of water such as Temperature, Oxygen levels, and pH. These factors also contribute to the overall chemistry and quality of the water. Water quality is a critical factor in deciding the health of an ecosystem. Several studies have been conducted concerning how water composition plays a part in all aquatic niches, and many point out that the health of fish is a major indicator of the quality of water. Qualitative measurements such as dissolved oxygen levels (DO), pH, and temperature are all elements to water’s environmental effects. Articles such as Oram’s (2014) states that the minimum amount of DO allowed for fish to survive is around 4 mg/l as anything below that most fish will die. Studies conducted by the U.S. Geological Survey (2015) shows that oxygen levels are affected mainly by flow and temperature. The pH has a direct effect on the ability for plants to prosper. Lovejoy (2015) and a research project conducted by the Grand Canyon monitoring and research center (2010) indicated a correlation between temperature and physical growth of fish and rate of successful fertilization. It concluded that a lukewarm temperature of 20 degrees Celsius is the optimal temperature for growth and successful fertilization for the hunchback chub, the species used in Lovejoy’s study. Rainbow Trout prefer a colder temperature range, about 13 degrees to 15 Celsius. (Root 1994).

Congratulations to Reece Spradley from Batesburg-Leesville High School for winning Best in Show. Reece will now compete at the International Science and Engineering Fair in May. The Best in Show award includes an all-expenses-paid trip for Reece and a parent.

FREE Teacher Resources and Visiting Scientists Available

The Traveling Science and Mathematics Demonstrations Program has over 300 science and math kits available for use in the classroom. Supplement your curriculum with nationally recognized and state adopted exemplary materials. Kits have been correlated to SC state standards. Many kits contain children’s literature so that you can integrate your science and language arts lessons.

In addition to these resources, you can request a visiting Scientists with Traveling Resources and Neat Demonstrations (STRAND) volunteer for classroom presentations. For more information please visit http://rpsec.usca.edu/travelingscience/ or call us at 803-641-3683.
Students from Paul Knox Middle School received first place recognition at the 2016 South Carolina Regional Future City Competition, sponsored by Savannah River Nuclear Solutions and the Ruth Patrick Science Education Center. The competition, which each year invites 6th, 7th and 8th graders to create a city of tomorrow, was held January 22nd on the USCA campus.

This year’s winning team created the futuristic city, Sahira, and included students Madden Bell, Savannah Padgett, and Rebekah Rahman, along with Amanda Burnside, teacher and faculty sponsor of the Future City Team, and engineer mentor Matt Bodine.

In addition to a $1,000 USC Aiken scholarship sponsored by AT&T, students on the winning team received a trip to the Annual Future City National Finals in Washington, D.C., held Feb. 13-17 during Engineers Week. Team members were also awarded $100 each, backpacks, a trophy, and medallions.

Sponsored by the nation’s professional engineering community, Future City is the nation’s largest engineering education program, encouraging interest in science, technology, engineering, and mathematics through hands-on applications.

**2ND PLACE - HILTON HEAD CHRISTIAN ACADEMY**

**3RD PLACE - NORTH AUGUSTA MIDDLE SCHOOL**

**FUTURE CITY SPECIAL AWARD WINNERS**

- **HONORABLE MENTION AWARD - 4TH PLACE** - AIKEN AREA HOME EDUCATORS, NOVA UTIL
- **HONORABLE MENTION AWARD - 5TH PLACE** - ST. MARY ON THE HILL, KEINA ABFALL
- **PROTECTION OF THE PUBLIC AWARD** - JACKSON MIDDLE, JEFFERSONVILLE
- **ROOKIE TEAM AWARD** - HILTON HEAD CHRISTIAN, RECYCLIA
- **BEST PLANNED CITY** - NORTH AUGUSTA MIDDLE, NORTH ARCHIPELAGO
- **BEST USE OF AUTOMATION** - ST. MARY ON THE HILL, KEINA ABFALL
- **BEST CIVIL ENGINEERING ASPECTS** - ST. MARY ON THE HILL, ENERGIA
- **BEST LAND SURVEYING PRACTICES AWARD** - PAUL KNOX MIDDLE, SAHIRA
- **MOST SUSTAINABLE FOOD PRODUCTION** - KENNEDY MIDDLE- WASTE BUSTERS
- **STUDENT CHOICE AWARD** - AIKEN AREA HOME EDUCATORS, NOVA UTIL
- **BEST MODEL AWARD** - AIKEN AREA HOME EDUCATORS, NOVA UTIL
- **BEST ESSAY** - PAUL KNOX MIDDLE, SAHIRA
- **GREENER CITY** - LBC MIDDLE, TRITON CITY
- **BEST DISTRIBUTION OF POWER** - LEAVELLE MCCAMPBELL MIDDLE, ROCK STAR CITY
- **BEST ENERGY AWARD** - ST. MARY ON THE HILL, TRANZURKA
- **BEST PROJECT MANAGEMENT TEAM** - HILTON HEAD CHRISTIAN, RECYCLIA
Nuclear Science Week
SAVE THE WEEK
October 17-21, 2016

Nuclear Science Week is a national, broadly observed week-long celebration that focuses on all aspects of nuclear science. Events during this week will provide many learning opportunities about contributions, innovations and careers that can be found exploring nuclear science.

**Education Day**
Ruth Patrick Science Education Center
Aiken, SC
October 17-21, 2016

**Site Visit Day**
SCANA
VC Summer Jenkinsville, SC
October 18-20, 2016

**Site Visit Day**
Southern Company Plant Vogtle
Waynesboro, GA
October 17-21, 2016

**Site Visit Day**
Savannah River Site
Aiken, SC
October 19, 2016

**Education Day**
University of South Carolina Salkehatchie
Allendale, SC
October 21, 2016

**CNTA Annual Edward Teller Lecture**
USC Aiken Convocation Center
Aiken, SC
October 19, 2016

**STEM Career Connections Day**
Hosted by SRS Community Reuse Organization
Augusta, GA
October 20, 2016

For updates on these activities and more, visit www.nwinitiative.org or contact Kim Saxon at kim.saxon@srsco.org
Nuclear Science Week Programs for Grades 7-12
October 17-21, 2016

We invite Middle and High School Science Teachers to consider bringing your students to a new, hands-on physical science class entitled Center of an Atom - An Investigation of Protons, Neutrons, Electrons, Elements, and Isotopes that will be offered at the Ruth Patrick Science Education Center during Nuclear Science Week in the fall (October 17-21, 2016). In this program, students explore atomic structure using a series of hands-on activities, concluding with the discovery of the uses of an atom they create using the Interactive Nucleus display and the Living Periodic Table. This program is sponsored by the American Nuclear Society- Savannah River Section.

Other RPSEC programs offered that week that may be of interest to middle and high school students include Probing the Periodic Table, Chemicals Matter, Meet the Elements and To the Moon and Beyond (planetarium). Note: We can accommodate up to 90 students per visit if they rotate through three, one-hour programs.

Beginning in April, the Ruth Patrick Science Education Center will be accepting reservation requests for field trip programs for the 2016-2017 school year. Reservation request forms are available at http://rpsec.usca.edu/student/. The deadline for teachers to submit their requests is Friday, June 10, 2016 at 5:00 PM. Our programs fill up quickly, so please do not delay!

For more information about student programs or Nuclear Science Week, please go to: http://rpsec.usca.edu/student/ or e-mail us at rpsec@usca.edu.

Border Bash Grant Received

Ruth Patrick Science Education Center has been selected to receive a grant from the Border Bash Foundation. The grant was received in December, 2015.

The project that was funded, Discovery 360, will provide scholarships for economically disadvantaged 6th grade students at Glenn Hills Middle School, a Title I school from Richmond County, to visit the Ruth Patrick Science Education Center at USC Aiken for a series of programs, free of charge, during the 2016-2017 school year. The activities will be aligned to state science standards and will be designed to actively engage students in hands-on, inquiry-based learning.

Border Bash Foundation, Inc., itself a 501(c)(3) organization, uses the money raised by the annual Border Bash event to benefit other area 501(c)(3) organizations focused on positively impacting children. Since its inception, Border Bash has donated over $600,000 to various charities.

Development Officer, Judith Goodwin, says, "The folks involved with the Border Bash have worked hard to have a successful event that thousands enjoy, and then turn the proceeds around to help the community. USC Aiken is extremely grateful that they recognize the importance of STEM education (science, technology, engineering and math) through the Ruth Patrick Science Education Center to benefit the children of the CSRA."
SUMMER 2016 STEM EDUCATION
PROFESSIONAL DEVELOPMENT OPPORTUNITIES
Teaching and Assessing SCCCR Standards for Mathematics with Applications of the Science & Engineering Practices
For K-12 Mathematics and Science Teachers, Curriculum Support Specialists, Coaches and School Administrators

JUNE 2016 SUMMER INSTITUTES
(See descriptions and registration details below.)
All Sessions will be held Monday – Thursday, 8:30 AM – 3:30 PM

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Course Title</th>
<th>Dates</th>
<th>Location</th>
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<tbody>
<tr>
<td>High School</td>
<td>High School Mathematics With STEM Applications</td>
<td>June 13 - 16, 2016</td>
<td>USC Aiken RPSEC</td>
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<td>Grades 9 - 12</td>
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<tr>
<td>Elementary School</td>
<td>Elementary Mathematics With STEM Applications</td>
<td>June 20 - 23, 2016</td>
<td>USC Aiken RPSEC</td>
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<td>Grades K - 2</td>
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JULY 2016 SUMMER INSTITUTES
(See description and registration details below.)
All Sessions will be held Monday – Thursday, 8:30 AM – 3:30 PM

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<tbody>
<tr>
<td>Elementary School</td>
<td>Elementary Mathematics With STEM Applications</td>
<td>July 11 - 14, 2016</td>
<td>USC Aiken RPSEC</td>
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<td>Grades 3 - 5</td>
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<tr>
<td>Middle School</td>
<td>Middle School Mathematics With STEM Applications</td>
<td>July 25 - 28, 2016</td>
<td>USC Aiken RPSEC</td>
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<td>Grades 6 - 8</td>
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STEM Focus Areas Include: Science and Engineering Practices & The Engineering Design Process; Biomedical Engineering; Aeronautics/Aerospace Engineering – The Mathematics and Science of Flight; Satellites, GPS & Navigation; Civil Engineering - Bridges, Structures, Mathematics and Physics in Roller Coaster Design; Electrical & Mechanical Engineering - Wind Turbines; Robotics Programming and Data Analysis, PLTW; Modeling & Interactive Technology Simulations and Applications, Handheld & Computer-Based Technology:TI 84 Plus & TI Nspire Graphing Calculator and iPad Applications, Geometer's Sketchpad & Geogebra

REGISTRATION FORMS CAN BE FOUND AT http://rpsec.usca.edu/
The Ruth Patrick Science Education Center (RPSEC) at USC Aiken will offer a four-day Concepts in Algebra Institute, Monday - Thursday, June 6-9 from 8:30 a.m. - 3:30 p.m. The Algebra Institute is designed to provide instructional support for middle and high school teachers who will teach Foundations in Algebra, Intermediate Algebra, Algebra I and II, and Pre-Calculus courses.

Participants will engage in professional learning designed to improve their understanding of fundamental algebraic ideas and knowledge of real world applications of the South Carolina College- and Career-Ready Standards in Mathematics. The focus will be on improving academic excellence in mathematics with an emphasis on research-based instructional strategies and the use of instructional technology.

Over the past few years, participants in professional learning programs offered through the RPSEC have included teachers, coaches, curriculum specialists, and administrators from over 48 districts across South Carolina. The feedback has always been overwhelmingly positive.

REGISTRATION and INFORMATION
A registration form and more information can be found at https://rpsec.usca.edu/ProfessionalLearning/

Please don’t hesitate to email Gloria Allen at gloriaa@usca.edu or call at 803-641-3592 if additional information is needed. You don’t want to miss out on this exceptional opportunity to enliven your middle and high school mathematics classes!

REGISTRATION DEADLINE: MONDAY, MAY 30, 2016

**Monday, June 6, 2016**
CONTENT STANDARDS - TOPICS
- Reasoning with Equations and Inequalities
- Creating Equations
- Structure and Expressions
- Arithmetic with Polynomials & Rational Expressions

**Wednesday, June 8, 2016**
CONTENT STANDARDS - TOPICS
- Expressing Geometric Properties with Equations
- Number and Quantity
- Real Number Systems
- Complex Number Systems

**Tuesday, June 7, 2016**
CONTENT STANDARDS - TOPICS
- Building Functions
- Interpreting Functions
- Linear, Quadratic & Exponential Functions
- Similarity, Right Triangles, and Trigonometry

**Thursday, June 9, 2016**
CONTENT STANDARDS - TOPICS
- Interpreting Data
- Making Inferences and Justifying Conclusions
- Using Probability to Make Decisions

**CONCEPTUAL DEVELOPMENT STRATEGIES AND APPLICATIONS**
- SCCCR Mathematical Process Standards
- Effective Integration of Instructional Technology
- Mathematical Modeling, Symbolic Reasoning & Representations of Mathematical Ideas
- Clarification of Student Misconceptions and Interventions
- Concept Development through Real World Situations and Connections
- Formative and Summative Assessment Approaches and Methodology

Facilitators: William (Bobby) Cue, Mathematics Specialist, Ruth Patrick Science Education Center
Gloria Allen, Professional Development Coordinator, Ruth Patrick Science Education Center
& Dr. Gwendolyn Johnson, Instructor, USC Aiken School of Education
Southeastern Summer Nuclear Institute (SSNI)
July 15-17 2016

A 3-day summer institute will be presented to promote nuclear education and workforce development in the southeast. Middle and high school teachers from Georgia, South Carolina and other states with interest in nuclear technology applications and promoting student interest in STEM related careers are invited to attend.

The Institute will include a tour of the Vogtle nuclear energy facility in Burke County, GA including control room visits, simulator exercises, meetings with nuclear power reactor personnel, etc. The Institute will also include a tour of the Savannah River Site (SRS) near Aiken, SC including radioactive waste management facilities and the Savannah River National Laboratory. In addition, a visit to Augusta University will be included along with an overview of nuclear medicine facilities and procedures.

The Institute will feature a workshop to emphasize atomic and nuclear fundamentals, power generation fundamentals, nuclear technology applications, risk (real vs. perceived), and nuclear workforce opportunities with hands-on activities to illustrate important technical concepts and scientific principles.

The SSNI will have the following benefits:
- Broader knowledge and understanding of the pros and cons of various energy sources.
- Opportunities for middle and high school students to pursue STEM related careers.
- Future nuclear workforce development including engineering, technical support, skilled labor, etc.
- Good public relations for the nuclear industry.
- Support for southern nuclear utilities in selecting nuclear power for future energy needs.

Partners include: American Nuclear Society – Savannah River, AREVA, Citizens for Nuclear Technology Awareness, EnergySolutions, Georgia Power Co./Plant Vogtle, Ruth Patrick Science Education Center, SRS Community Reuse Organization, USC Aiken, Aiken Rotary

Registration is limited to 30 middle and high school teachers in order of receipt. A registration fee of $50 and the registration form must be postmarked by May 15th, 2016 to be eligible. Questions should be e-mailed to: SSNI1515@gmail.com.

Teachers receive $50 in gift cards, free housing at USC Aiken (if needed), free meals, educational resources including DVD with presentations and reference materials, American Nuclear Society outreach materials and teacher guides, and a certificate of completion.

http://rpsec.usca.edu/Workshops/CNTA/SSNI2016.html
Masters Degree in Educational Technology
Earn Your USCA Degree Online

Do you enjoy using your computer? Do others ask you how to do something on their computers? Do you enjoy showing others something new on your computer? Have you considered getting a masters degree? Then maybe it is time for you to consider the Masters of Education in Educational Technology (MEd Tech). The MEd Tech program at University of South Carolina Aiken (USCA) and the University of South Carolina (USC) Columbia is accepting applications for enrollment. For more information visit http://edtech.usca.edu/.

The focus of the program is to develop capabilities essential to the effective design, evaluation, and delivery of technology-based instruction and training (e.g., software development, multimedia development, assistive technology modifications, web-based development, and distance learning) in order to (1) prepare educators to assume leadership roles in the integration of educational technology into the school curriculum, and (2) to provide graduate-level instructional opportunities for several populations (e.g., classroom teachers, corporate trainers, educational software developers) that need to acquire both technological competencies and understanding of sound instructional design principles and techniques.

Anyone interested in enrolling in this program should contact Karen Morris at 803-641-3489.

Foundational Core Courses (6 hours)
- AERM/EDRM 700 – Introduction to Research in Education
- AEET/EDET 709 – Applications of Learning Principles

Design Courses (15 hours)
- AEET/EDET 603 – Design and Development Tools I
- AEET/EDET 703 – Design and Development Tools II
- AEET/EDET 722 – Instructional Design and Assessment
- AEET/EDET 755 – Design and Evaluation of Information Access and Delivery
- AEET/EDET 793 – Advanced Instructional Design and Development

Technology Core Courses (12 hours)
- AEET/EDET 650 – Internship in Educational Technology
- AEET/EDET 735 – Technological Applications for Diverse Populations
- AEET/EDET 746 – Management of Technology Resources
- AEET/EDET 780 – Seminar in Educational Technology

Electives (3 hours chosen from the following courses)
- AEET/EDET 652 – Design and Evaluation of Games and Simulations
- AEET 731 – Instructional and Informational Applications of Technology or
- EDTE 731 – Integration of Technology and Instruction
- SLIS 706 – Introduction to Information Technologies
- TSTM 790 – Advanced Study in Technology Support/Training Management

The Ruth Patrick Science Education Center Newsletter is a publication of the RPSEC for our patrons. The RPSEC, housed at the University of South Carolina Aiken, encompasses the Center of Excellence in Educational Technology (CEET), DuPont Planetarium, RPSEC Student Programs, RPSEC Professional Learning, Traveling Science and Mathematics Demonstrations Program (TSMDP), the Science and Technology Enrichment Program (STEP), and Center of Excellence in Middle-level Interdisciplinary Strategies for Teaching (CE- MIST). If you have any information that would be beneficial to the audience of this newsletter, or if you would like to be added to the mailing list, please contact John Hutchens, Editor, at 803-641-3474 or via email to johnh@usca.edu. Deadline for submission in the next newsletter is July 1, 2016.