

Mathematics and Science Education Center

APPALACHIAN STATE UNIVERSITY

MSEC Newsletter

Fall 2016

MATHEMATICSEDUCATION LEADERSHIP TRAINING (MELT) PROGRAM

WOW. What a summer MELT had. Under the guidance of its Director, Michael Bossé, the 2016 MELT Program offered eleven week-long Summer Institutes that emphasized the Common Core State Standards for Mathematics (CCSSM). Among others, these Institutes included: Math Ed Technology (6-12); High School Math 1, 2, and 3; Algebraic Thinking, Algebra & Functions (K-5 & 6-8); Measurement, Geometry, & Proportions (K-5 & 6-8); Numbers, Operations & Meaning (K-5 & 6-8); and Literacy in Mathematics (K-8). A record high of 146 participants attended MELT Institutes this summer, eclipsing last year's record high of 121. This establishes even higher goals for next year.

To best meet the needs of teachers and to address state and national political and educational movements, MELT Summer Institutes change both offerings and curricula every year. This year, MELT added a new institute on Literacy in Mathematics and provided teachers with an opportunity to earn CEUs in Literacy.

The MELT program continues to host a wiki space for MELT participant resources. This year, the MELT email list grew to almost 30,000 teachers and administrators across the state of North Carolina alone and school district administrators in five surrounding states. This has greatly affected the visibility of MELT.



RCOE HAS A NEW DEAN

We in the Reich College of Education offer a hearty welcome to Dr. Melba Spooner, who started as Dean on July 1, 2016. Dr. Spooner comes to us from the University of North Carolina at Charlotte, where she has spent her higher education career in various roles in the College of Education, with her most recent position being senior associate dean. With bachelor's and master's degrees in early childhood education from UNC Charlotte and her Ed.D. in curriculum and teaching from the University of North Carolina at Greensboro, along with her experience at UNC Charlotte, she is quite familiar with the UNC System. She started her career in the Charlotte-Mecklenburg Schools as a classroom teacher and assistant principal. By education and experience, Dr. Spooner is eminently qualified for her new position here, and we look forward to working with her.

2016-2017 SCIENCE SEMINARS

Increasing scientific literacy is the goal of this year's science seminars. All seminars are on Thursday nights. The seminars are open to everyone, are free, and offer license renewal credits (0.2 per seminar) to teachers. All seminars will be in room 124C in the new Reich College of Education Building from 6:00-8:00 p.m. with refreshments at 6:00. Parking on campus is free after 5:00 p.m. with the most convenient parking for the seminars being in the Library Parking Deck near the College of Education Building. The spring seminar is part of the North Carolina Science Festival that will take place during April 7-23, 2017. The schedule for the 2016-2017 series is:

Sept. 15, 2016: Jeff Goodman (Curriculum and Instruction), "How Science Teachers May Unwittingly Perpetuate Misconceptions"

Sept. 22, 2016: Tonya Coffey (Physics and Astronomy), "If Everything Is a Wave, What's Waving? What Wave/Particle Duality Means"

Sept. 29, 2016: Jim Sherman (Physics and Astronomy), "Changing Air Quality and Its Impact on Solar Radiation Budget in the Southern Appalachian Region"

Oct. 6, 2016: Dan Caton (Physics and Astronomy), "Big Bang and the Age of the Universe"

Nov. 3, 2016: Jamie Levine (Geology), "Mountain-Building Events around Boone and the Blue Ridge"

Nov. 10, 2016: Mark Venable (Biology), "How Could All This Just Happen By Chance:

From Chemistry to Life to Complex Species"

April 13, 2017: Andy Heckert (Geology), "Dinosaurs and STEM: Using "Terrible Lizards" to Teach Paleontology, Geology, Biology and More"

DATES TO REMEMBER

Science Seminars 2016: Sept. 15, 22, 29; Oct. 6; Nov. 3, 10; and 2017: Apr. 13; ASU

October 19, 2016: NCSLA Meeting, Greensboro, NC

October 20-21, 2016: NCSTA Annual Professional Development Institute, Greensboro, NC

October 25-26, 2016: NCABR Bridging the Gap Conference, Raleigh, NC

October 26, 2016: NCCTM Leadership Seminar, Greensboro, NC

October 27-28, 2016: NCCTM State Mathematics Conference, Greensboro, NC

December 13, 2016: Region 7 Science Fair and Student Academy of Science, ASU

January 31, 2017: Deadline for SVSM Applications

March 25, 2017: NCCTM Western Region Math Fair, ASU

March 30-April 2, 2017: NSTA National Conference on Science Education, Los Angeles, CA

March 8, 2017: NCCTM Math Contest, ASU

April 7-23, 2017: North Carolina Science Festival

April 7, 2017: STEAM Expo, ASU

April 5-8, 2017: NCTM Annual Meeting & Exposition, San Antonio, TX

April 28, 2017: NCCTM State Math Fair, Durham, NC

PROGRAMS FOR K-12 STUDENTS

The MSEC is always pleased to arrange math or science programs for students visiting campus or to present programs in the schools. For many years, we have been sponsoring Family Math Nights and Family Science Nights in elementary and middle schools. These programs involve students and their parents together exploring interesting facets of mathematics and science. The MSEC is pleased to offer these programs at no cost to the schools. Contact Ms. Leah McManus at mcmanusld@appstate.edu for further information on these or other programs.



Visit us online at

www.msec.appstate.edu

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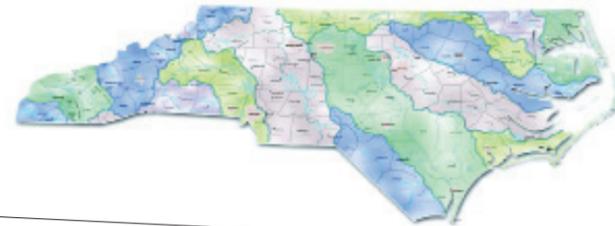
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MSEC Staff:

Phillip Johnson, Director; Betty Long, Assistant Director; Lori Tyler, Summer Ventures in Science and Mathematics Director; Leah McManus, Administrative Assistant

Contributors to the Newsletter: Coleman Bailey, Mike Bossé, Debbie Crocker, Betty Long,

Sue Purser, Tonya Coffey, Tracey Tardiff, Leah McManus and Lori Tyler



NOTES FROM THE DIRECTOR

The SPOTLIGHT feature debuted in our fall 2015 newsletter and featured our two newest math education faculty members. This fall's newsletter puts the spotlight on our two most-recently promoted and tenured science education faculty members. For future newsletters, I would like to hear your suggestions of ASU faculty or teachers in the schools whom you would like to see featured.

This year, all our science seminars will again be on Thursday nights. Last year, we had a seminar on a Tuesday night for the first time in the many years that we have been sponsoring the seminars because we did not want to compete with a Thursday night football game. This year, all the week-day football games are away. From your feedback, Tuesday night seems to work fine for seminars, so in the future we may again schedule some seminars on Tuesdays rather than Thursdays. We have another outstanding seminar series this year, and we hope you will join us and encourage others to come.

My thanks to everyone who contributed to and helped proofread the newsletter. If you have ideas for articles in math and science education that should be considered for inclusion in future newsletters, please let me know.

Phil Johnson



KEEP UP WITH MSEC ACTIVITIES

Current and earlier newsletters are available at www.msec.appstate.edu. In addition, print copies of the newsletter are distributed to math and science and some other departments on campus and are available at the MSEC for visitors and participants in Center programs. If you are a K-12 teacher or administrator, we invite you to add your name to our Google Group (formerly listserv) by sending your email address to Ms. Leah McManus at mcmansuld@appstate.edu. We have formerly had separate listservs for elementary, middle and high school, but we think it is more useful to have one Google Group that combines all three levels. We are careful not to bombard you with notices. We use the Google Group to let you know about workshop opportunities, seminars and other items of interest. If you belong to the Google Group and change addresses, please let us know so that we can update your information. In addition to information in the newsletter and information sent to Google Group members, the MSEC website always has the most up-to-date information on Center activities.



WELCOME TO THE NEWEST MEMBER OF THE MSEC STAFF

The Mathematics and Science Education Center is pleased to welcome Ms. Leah McManus as its administrative assistant following the retirement of long-time administrative assistant Vickey Isaacs in March 2016. Ms. McManus joined the staff of the Center in April 2016 following a search that generated numerous well-qualified candidates. Prior to joining the MSEC, Leah worked at the ASU Library, where she had been since 2000. With a B.S. in Anthropology from Appalachian State University and a Masters of Library and Information Science from UNC Greensboro, Leah has the ideal skills and background needed for her new position. Leah is putting her library skills to good use by cataloging all the materials in the MSEC and listing what we have on our website. Having a list of materials available will greatly increase the usefulness of our resource room to teachers and students.

NORTH CAROLINA SCIENCE FESTIVAL

The seventh annual North Carolina Science Festival will be held April 7-23, 2017. Dr. Tonya Coffey of the Physics and Astronomy Department, with able assistance from Ms. Tracey Tardiff, will again coordinate campus events for the North Carolina Science Festival. STEAM (Science, Technology, Engineering, Arts and Mathematics) Expo Day on the ASU campus will be held on Friday, April 7, 2017, during this year's Festival. STEAM Expo Day with its large number of awesome science and math activities gets more popular each year and draws crowds of excited participants. You are encouraged to get requests in early to Tracey Tardiff (tardiffa@appstate.edu) of the College Access Partnerships to attend STEAM Expo Day since space is limited. More information will be in the spring newsletter and on our website in the early spring. You may also get information by visiting www.ncsciencefestival.org.



NORTHWEST REGIONAL SCIENCE FAIR and STUDENT ACADEMY OF SCIENCE

The Reich College of Education is again hosting the Region 7 Science Fair. The Fair will be on Tuesday morning, December 13, 2016, in the College of Education Building at ASU. The counties in Region 7 are Alexander, Alleghany, Ashe, Avery, Burke, Caldwell, Catawba, Davie, Iredell, Surry, Watauga, Wilkes, and Yadkin. Mr. Coleman Bailey, colemanbailey@averyschools.

net, is chairing the 2016-2017 Northwest Regional Science Fair. Registration fees and other details will be posted on the MSEC website, www.msec.appstate.edu, when they become available. Also, the North Carolina Student Academy of Science (NCSAS) competition will take place in the afternoon in the same building. Ms. Susan Purser coordinates the NCSAS competition. If you are interested in judging in the NCSAS competition or have questions concerning the competition, contact Sue at smp28607@gmail.com. If you would be interested in judging in the science fair, send a note to johnsnpe@appstate.edu.

SUMMER SCIENCE WORKSHOPS

The MSEC was fortunate to be selected as one of the regional sites for two state-wide workshops, one by the North Carolina Science Fair and the other by the North Carolina Department of Public Instruction (NCDPI). We are pleased that we were able to secure these opportunities for our teachers and appreciate these two organizations selecting us as one of the sites. Both workshops awarded license renewal credits and furnished stipends to participants. Details of the NCDPI offering may be found in the spring 2016 newsletter. The science fair workshop, Inspiring Innovation in Student Research, gave teachers valuable insight in guiding students in their science projects as well as furnishing them with the technical details of putting on a science fair. Both workshops were well attended; the one-day science fair workshop had 21 participants and the two-day NCDPI workshop had 23 participants. This was our third summer of hosting the science fair workshop and the first year for hosting the NCDPI workshop; we hope that both will continue to be part of our summer offering for teachers.

MATH CONTEST

The Department of Mathematical Sciences at ASU, in cooperation with the Math and Science Education Center, will host a regional NCCTM Math Contest for Level 1 and Comprehensive divisions on Wednesday, March 8, 2017. Qualifiers for Level 1 will advance to the Regional Finals at UNC-Asheville, and Comprehensive will advance to the State Finals at the North Carolina School of Science and Mathematics (dates TBD). Registration deadline for ASU's Math Contest is February 17, 2017. Online registration and additional information can be found on the Department of Mathematical Sciences' website, <http://www.mathsci.appstate.edu/news-events/math-contest>, by late October.

SUMMER VENTURES IN SCIENCE AND MATHEMATICS

Seventy North Carolina rising juniors and seniors participated in the 2016 SVSM program at ASU in July. Students completed high quality research projects, and several will present their projects at the State of North Carolina Undergraduate Research and Creativity Symposium (SNCURCS) on November 5. SVSM remains a cost-free program for high academic achieving North Carolina students and is coordinated by the North Carolina School of Science and Mathematics. The program is currently offered at three UNC campuses (ASU, ECU, and UNCC). Applications and information for SVSM 2017 will be available in mid-October at www.summerventures.org, with a deadline of January 31. Please contact Lori Tyler, SVSM Director at ASU (tylerle@appstate.edu), for questions or to schedule a recruitment visit for your school/classroom.



SPOTLIGHT: Science Education Faculty

Our most recently tenured science education faculty members are Associate Professor Rachel Wilson in the Reich College of Education, and Associate Professor Jennifer Geib in the College of Arts and Sciences. Rachel is in the Department of Curriculum and Instruction, and Jenni is in the Department of Biology. We offer our congratulations on their tenure and promotions and wish them many happy, productive years here.

Dr. Wilson completed a B.A. in Biology with a concentration in Environmental Studies at Bryn Mawr College in Pennsylvania. Her interest in teaching was sparked by working in a public elementary school in Santa Barbara, CA. She then went on to teach integrated science and mathematics at a public secondary school in an indigenous village in Guyana, South America for two years before returning to the US to pursue a Ph.D. in Science Education at the University of Georgia. Dr. Wilson joined the faculty in Curriculum & Instruction in 2011 and teaches Environmental Literacy, Science and Science Teaching in the Elementary School, and Teacher as Researcher. Her research interests focus on students' personal learning experiences and meaning making in science, as well as the role of multiple representations in learning science content. Dr. Wilson works closely with Dr. Leslie Bradbury in their research projects and service; together they have provided workshops for local teachers through the Mathematics and Science Education Center at Appalachian State focusing on garden-based learning and the use of multiple representations.



Dr. Geib completed a B.S. in Science Education at the University of Iowa and taught middle school science in Columbia, Missouri. She then worked as Coordinator for Gender Equity in Physics at the University of Missouri for three years and conducted teacher workshops and informal physics education programs for grades 5-9. She completed a Ph.D. in Biology at the University of Missouri in 2010 and joined the Appalachian State University Biology Department. She now leads a dual life as a scientist and teacher educator, with her research interests reflecting these diverse aspects of her professional training. Her biological research studies the ecology, evolution and behavior of plant-pollinator mutualisms, especially in high elevation habitats. Her educational research focuses on the effective preparation of science educators from their pre-service training throughout their teaching careers. She has conducted numerous workshops for middle and high school teachers in Western North Carolina on incorporating literacy to support science inquiry in classrooms, and she has collaborated with App State faculty (Drs. Lisa Gross and J. Joy James) on preparing elementary educators to teach science outdoors. She is currently the Director of the Undergraduate Biology Secondary Education Program at Appalachian State.



2016 STATE MATH CONFERENCE



The State Mathematics Conference will be held on October 27-28, 2016, at the Koury Convention Center in Greensboro. Stefanie Buckner and Drew Polly are the Conference Co-Chairs, and Jenna Regan, Kim Solomon, and Kwaku Adu-Gyamfi are the Program Co-Chairs. The theme for the conference is "Leaping Forward: Teaching & Learning, Equity, Curriculum, and Assessment." There will be over 300 sessions and workshops on a wide variety of topics for teachers and other school personnel at all levels. The keynote speakers are Dan Meyer, Zachary Champagne, Robert Berry, Jennifer Wilson, Susan Empson, and Ellen Whitesides. The featured speakers are Maria Blanton, Mike Bossé, Jere Confrey, and Jennifer Curtis. There will be lots of exhibitors, an awards celebration, opportunities to network, and much more. This is a wonderful opportunity for teachers and administrators to recharge, network, and continue learning. Visit the NCCTM website at ncctm.org to register for the Conference. A preliminary program will be posted soon.

2016 FALL LEADERSHIP SEMINAR

The 2016 Fall Leadership Seminar will be held at the Koury Convention Center on Wednesday, October 26 (the day before the State Mathematics Conference). The keynote speakers will be Dan Meyer, Zachary Champagne, and Jere Confrey. The mathematics team from the North Carolina Department of Public Instruction will also give a presentation. Visit the NCCTM website at ncctm.org to register for the Leadership Seminar.

MATH FAIRS

The North Carolina Council of Teachers of Mathematics (NCCTM) sponsors three regional math fairs. Winners from the three regional fairs are invited to participate in the State Math Fair. The 2017 Western Region Math Fair will be held on Saturday, March 25 at Plemmons Student Union on the campus of Appalachian State University in Boone, and the NCCTM State Math Fair will be on Friday, April 28, 2017 at the North Carolina School of Science and Mathematics in Durham. A list of the winners in the 2016 State Math Fair can be found at [ncctm.org/ncctm/assets/file/statefairwinners2015\(1\).pdf](http://ncctm.org/ncctm/assets/file/statefairwinners2015(1).pdf) under the tab "Resources and Activities." Pictures of the Western Region Math Fair as well as the State Math Fair are posted at Mathsci2.appstate.edu/Events/MathFair/. Start working with your students on their projects for the upcoming Western Region Math Fair. For more information on the math fairs, go to the NCCTM website, ncctm.org, look for the Resources and Activities tab at the top of the page, and select Math Fairs, or contact Dr. Betty Long (longbb@appstate.edu). Information on the 2017 fairs and registration forms will be posted on the NCCTM website in October.