

DATES TO REMEMBER

Science Seminars 2015: Sept. 17, 24; Oct. 1, 8, 20, 29; Nov. 10; and **2016:** Apr. 14

October 27-28, 2015: NCABR Bridging the Gap Conference, Raleigh, NC

November 4, 2015: NCCTM Leadership Seminar, Greensboro, NC

November 5-6, 2015: NCCTM State Mathematics Conference, Greensboro, NC

November 12-13, 2015: NCSTA Annual Professional Development Institute, Winston Salem, NC

November 18-20, 2015: NCTM Regional Conference, Nashville, TN

December 15, 2015: Region 7 Science Fair and Student

Academy of Science, ASU

January 31, 2016: Deadline for SVSM Applications

March 31-April 3, 2016: NSTA National Conference on Science Education, Nashville, TN

March 19, 2016: NCCTM Western Region Math Fair, ASU

April 6, 2016: NCCTM Math Contest, ASU

April 8-24, 2016: North Carolina Science Festival

April 13-16, 2016: NCTM Annual Meeting & Exposition, San Francisco, CA

April 22, 2016: ASU STEAM Expo

May 13, 2016: NCCTM State Math Fair, Durham, NC

TIME FOR A NAME CHANGE?

In the last few years, all the mathematics and science education (or science and math) centers in the state except for the ones at ASU and NCSU have changed their names to emphasize STEM in their titles. UNC Charlotte and ECU each has a Center for STEM Education, UNCW has a Center for Education in STEM, WSSU has a Center for Mathematics, Science and Technology Education. The center at NCSU is The Science House, a long-time brand that will likely remain the same. Should we change from MSEC to STEM Education Center? Since NC State has The Science House, perhaps we could be the Math and Science House! One advantage of a name change would be that we would perhaps avoid confusion with the Department of Mathematical Sciences so that we would stop receiving their mail and they would stop receiving ours. I will be discussing this possible change with the MSEC Advisory Board and with Dean Robin Groce. Let me know your thoughts on this at johnsnpe@appstate.edu.



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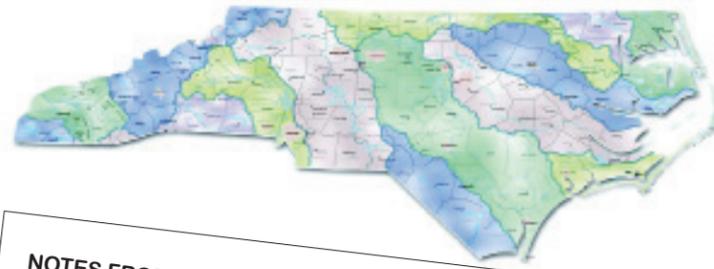
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Visit us at www.msec.appstate.edu.



NOTES FROM THE DIRECTOR

The SPOTLIGHT feature on our two newest mathematics education faculty members is a feature I would like to periodically include on other faculty members at ASU or in the schools. Please let me know of other teachers whom you would like to see highlighted in future newsletters.

For the first time, one of our seminars will be on a Tuesday night rather than the usual Thursday. Some Thursday nights have always been avoided when they conflicted with other meetings such as the NCSTA or NCCTM conferences, but this year there was a Thursday conflict that had never happened before, a Thursday football game. We obviously do not want to contend with football traffic, so I decided to have the fifth seminar on Tuesday, October 20 so stay away from the game that week. Please let me know if Tuesday nights should be considered in future years, or if it is better to stick with our usual Thursdays.

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

Mathematics and Science Education Center

APPALACHIAN STATE UNIVERSITY

MSEC Newsletter

Fall 2015

Mathematics Education Leadership Training (MELT) Program

Under the guidance of its Director, Michael Bossé, the 2015 MELT Program offered eleven week-long Summer Institutes that emphasized both the Common Core State Standards for Mathematics (CCSSM) and other applicable state standards (based on the employment state of various participants). These Institutes included: Math Ed Technology (6-12); Math 1, 2, and 3 of the CCSSM; Algebra and Functions (K-5 & 6-8); Geometry (K-5 & 6-8); Measurement & Statistics (K-5 & 6-8); and Building Mathematical Thinkers (7-12). One hundred twenty-one participants attended MELT Institutes this summer. This was record high participation, with a significant number of teachers also coming from Virginia; this establishes even higher goals for next year. The MELT Program continues to give significant consideration to the political and educational movements within the state and the nation in order to best meet the needs of teachers.

In addition to the MELT Summer Institutes, MELT has successfully held fall and spring workshops to provide graduate coursework for students. MELT also hosts a wiki space for MELT participant resources. Currently, adding to email lists of administrators in NC and in five surrounding states, MELT is developing an email list with the goal of reaching nearly all individual mathematics teachers in the state of North Carolina and providing important program information to all. Thus, MELT is evolving in a number of dimensions to better meet the needs of K-12 teachers in the local and extended region.

MELT is now looking at participant evaluations, communicating with K-12 and university faculty, planning for this year's meeting of its Board of Advisors, and communicating with school administrators in order to complete plans for next year's offerings.

MELT wishes to capitalize on, and build upon, a number of successes: continually increasing participation in Summer Institutes and the number of Summer Institutes offered, the continued support and collaboration with the Mathematics and Science Education Center, student participation in workshops, and the increase in enthusiasm among faculty and participants. The Mathematics and Science Education Center looks forward to continuing its long collaboration with and support of MELT to help make the program the best that it can be.

2015-2016 Science Seminars

Science and the Environment will be the topic for this year's science seminars. All seminars are on Thursday nights except for one on Tuesday, October 20; there is a Thursday night football game that week and we do not want to contend with the football traffic. The seminars are open to everyone, are free, and offer license renewal credits (0.2 per seminar) to teachers. The fall 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 8-24, 2016. The spring seminar will be in the same building in room 124C and will also be on the same time schedule, 6:00-8:00 p.m. The schedule for the 2015-2016 series is:

Sept. 17, 2015: Shea Tuberty (Biology), "National Trends and Effects of Winter Road Salt Application: Are Southern Appalachian Headwater Streams in Peril?"

Sept. 24, 2015: Bill Anderson (Geology), "North Carolina and the Hydrologic Cycle: Influences on Water Quantity and Quality in the Tar Heel State"

Oct. 1, 2015: Ray Williams (Biology), "Old Field Ecosystems and What They Can Tell Us about Biodiversity"

Oct. 8, 2015: Sarah Carmichael (Geology), "Hydraulic Fracturing in the United States, Especially in North Carolina"

Oct. 20, 2015: Cynthia Liutkus-Pierce (Geology), "How Geologists Reconstruct Paleoenvironments and Paleolandscapes"

Oct. 29, 2015: Chuanhui Gu (Geology), "Impacts of Lawn Care on Climate Change"

Nov. 19, 2015: Tonya Coffey (Physics and Astronomy), "Nanotechnology and the Environment"

April 14, 2016: Rachel Wilson (Curriculum and Instruction), "Science Education and Environmental Literacy"



KEEP UP WITH MSEC ACTIVITIES

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. You can always read both current and earlier newsletters at www.msec.appstate.edu. If you are a K-12 teacher, we invite you to add your name to one or more of our elementary, middle or high school list serves by sending your e-mail address and which list serve(s) you wish to join to Mrs. Vickey Isaacs at isaacsve@appstate.edu. Once you are on a listserv, please remember to let us know of any address changes. In addition to information in the newsletter and information sent to listserv members, the MSEC website always has the most up-to-date information on center activities.

NORTH CAROLINA SCIENCE FESTIVAL



The sixth annual North Carolina Science Festival will be held April 8-24, 2016. 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 Expo Day on the ASU campus will be held on Friday, April 22 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 large crowds of excited participants. You are encouraged to get requests in early to Tracey Tardiff (tardiff@appstate.edu) of the College Awareness Department, NCACHE (North Carolina Appalachian Collaborative for Higher Education) 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, December 15, 2015 in the new 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. The registration fee is \$10.00 per entry. Mr. Coleman Bailey, colemanbailey@averyschools.net, is chairing the 2015-2016 Northwest Regional Science Fair. Online registration will be available sometime after mid-October at <http://ncsefreg7.sfiab.com>. Refer also to the MSEC website, www.msec.appstate.edu, for updated information concerning the Fair. Also, the Student Academy of Science (NCSAS) competition will take place in the afternoon in the same building. Ms. Susan Purser is in charge of the NCSAS competition. Questions concerning the NCSAS competition may be sent to Sue at smpurser@gmail.com.

SUCCESSFUL COMPLETION OF RESEARCH EXPERIENCE FOR TEACHERS

For the last three summers, groups of twelve high school and

community college math or science teachers have engaged in research experiences with ASU faculty mentors and their graduate and undergraduate assistants to conduct research that will enable them to bring knowledge of computer science and technological innovation into their classrooms. The 36 teachers successfully completed several excellent research projects and developed a large number of course modules that are available for adoption at www.cs.appstate.edu/ret. We are indebted to Computer Science Professor Rahman Tashakkori for writing the successful grant proposal to get this exceptionally worthwhile program funded by the National Science Foundation. There will be a two-part workshop to introduce participants to course modules in the Research Experience for Teachers Program Repository and to provide an opportunity for hands-on experience using the modules at the annual NCABR Bridging the Gap Conference in Raleigh during the last week of October. At the same conference, the ASU MSEC and the other five STEM centers in the UNC System will host an information session concerning our work. Program details of this conference are available on the North Carolina Association for Biomedical Research website, www.ncabr.org/.

SUMMER VENTURES IN SCIENCE AND MATHEMATICS

Summer Ventures celebrated its thirtieth summer last year with students participating on four campuses in the UNC System. Appalachian had another excellent summer this year with 60 rising high school juniors and seniors experiencing this unique program of study and research in science and math. Applications for the 2016 program will be available online at www.summerventures.org in early October with a January 31, 2016 deadline. Please contact Lori Tyler (tylerle@appstate.edu) if you would like to schedule a recruitment visit to your school.



SPOTLIGHT: Mathematics Education Faculty

The University is fortunate to have added two mathematics educators to its faculty over the last two years. Dr. Diana Moss joined the mathematics education faculty in the Department of Curriculum and Instruction in the Reich College of Education last year, and Dr. Erica Slate Young joined the faculty in the Department of Mathematical Sciences in the College of Arts and Sciences this year. We welcome both of them to Appalachian State University and wish them many happy, productive years here.

Dr. Moss earned all three of her degrees from the University of Nevada at Reno (UNR). She is a native Nevadan who started her mathematical studies at UNR with the intention to work in Nevada's gaming industry after finishing her collegiate studies. Fortunately for the mathematics education community, Diana had a spark lit for teaching during her graduate teaching assistantship while working on her master's degree and decided to pursue her Ph.D. work in mathematics education. Diana

joined our faculty as soon as she finished her work at UNR.

Dr. Young came to ASU from the University of Alabama in Huntsville (UAH) where she was the Director of Accreditation Activities and an Assistant Professor in the College of Education. Before going to UAH, she served as the Assessment and Evaluation Consultant for the Department of Physics at the United States Air Force Academy in Colorado Springs, and she was an Assistant Professor in the Department of Mathematical Sciences at the United States Military Academy at West Point. Erica received a Ph.D. in Mathematics Education from the University of Texas at Austin, and she received B.S. and M.S. degrees from ASU. Dr. Slate Young is very happy to have the opportunity to come back home to Boone, and she looks forward to working with the schools and teachers in our area as well as working with the ASU students.

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 exploring together interesting facets of mathematics and science. Also popular for Grades 3-9 are presentations on rocks, minerals, North Carolina geology, the Blackbeard shipwreck, geo-archaeology project or other geology topics by geologist Jack Callahan. The MSEC is pleased to offer these programs at no cost to the schools. Contact Ms. Vickey Isaacs at isaacsve@appstate.edu for further information on these or other programs.

NCCTM NEWS



2015 STATE MATH CONFERENCE

The State Mathematics Conference will be held on November 5-6, 2015 at the Koury Convention Center in Greensboro. Tracey Howell and Carol Seaman are the Conference Co-chairs; Lisa Carnell and Amy Travis are the Program Co-chairs; and Karen McPherson is the Program Booklet Editing Chair. The theme for the conference is "Principles to Actions in Action". There are over 300 sessions and workshops on a wide variety of topics for teachers and other school personnel at all levels. The keynote speakers are Tim Kanold, Dan Brahier, Diane Briars, Doug Clements, and Jon Wray. The featured speakers are Charlene Sheets and Shirley Disseler. The sessions include content, ideas for incorporating different pedagogical tools into classrooms, information on incorporating technology in the classroom, and assessment tools for the classroom. This is a wonderful opportunity for teachers and administrators to recharge, network, and continue learning. Visit the NCCTM web site at ncctm.org to register for the Conference. A preliminary program will be posted soon.

2015 FALL LEADERSHIP SEMINAR

The 2015 Fall Leadership Seminar will be held at the Koury Convention Center on Wednesday, November 4 (the day before the State Mathematics Conference). The keynote speakers will be Diane Briars, Dan Brahier, and Jon Wray. Visit the NCCTM web site 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 2016 Western Region Math Fair will be held on Saturday, March 19 at Plemmons Student Union on the campus of Appalachian State University in Boone, and the NCCTM State Math Fair will be on Friday, May 13, 2016 at the North Carolina School of Science and Mathematics in Durham. The winners of the 2015 State Math Fair may be found at [ncctm.org/ncctm/assets/file/statefairwinners2015\(1\).pdf](http://ncctm.org/ncctm/assets/file/statefairwinners2015(1).pdf) and pictures of the Western Region Math Fair as well as the State Math Fair are posted at mathsci.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 web site, ncctm.org, look for the Resources and Activities tab at the top of the page, and select Math Fairs or contact Dr. Betty B. Long (longbb@appstate.edu). Information on the 2016 fairs and registration forms will be posted on the NCCTM website in October.

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 I and Comprehensive divisions on Wednesday, April 6, 2016. Qualifiers for Level I will advance to the Regional Finals at UNC-Asheville on April 28, 2016, and qualifiers for Comprehensive will advance to the State Finals at the North Carolina School of Science and Mathematics on April 14, 2016. The registration deadline for ASU's Math Contest is March 18, 2016, and it will be an online process this year. Check the Math Contest website for updates and information: <http://www.mathsci.appstate.edu/news-events/math-contest> or contact Lori Tyler at tylerle@appstate.edu. We are hoping more local schools (in the ASU region) attend this year's contest and hope to see lots of students excited about math in April!