

Mathematics and Science Education Center

APPALACHIAN STATE UNIVERSITY

MSEC Newsletter

Spring 2016

MELT Summer Institutes

Through the Mathematics Education Leadership Training Program (MELT), twelve weeklong professional development institutes for K-12 mathematics teachers will be offered on the ASU campus this summer. The institutes are offered in cooperation with Appalachian State University's Department of Mathematical Sciences and the Mathematics and Science Education Center. All of the institutes are focused on the North Carolina State Standards for Mathematics. The fee for each institute is \$300, with group discounts available. Discounts have been arranged at area hotels for lodging. Additionally, participants will earn either 3 CEUs or 2 graduate credits for each Summer Institute. (If an institute is taken for graduate credit, the usual graduate fees will also apply.) The twelve institutes to be offered are:

June 27 – July 1: MELT Week 1

- Integrating Technology into Mathematics (Grades 6-12)
- First High School Math (Freshman level/CC Math 1)
- Numbers, Operations, and Meaning (Grades K-5)
- Numbers, Operations, and Meaning (Grades 6-8)

July 11-15: MELT Week 2

- STEM & Leadership (Grades 6-12)
- Second Year High School Math (Sophomore level/CC Math 2)
- Algebraic Thinking, Algebra, and Functions (Grades K-5)
- Algebraic Thinking, Algebra, and Functions (Grades 6-8)

July 18-22: MELT Week 3

- Building Mathematical Thinkers through Assessment and Inquiry (Grades 6-12)
- Third Year High School Math (Junior level/CC Math 3)
- Measurement, Geometry, and Proportions (Grades K-5)
- Measurement, Geometry, and Proportions (Grades 6-8)

Registration for all institutes is now open. For a registration form and descriptions of the institutes, visit the MELT website, <http://melt.appstate.edu>, and select the link for Summer Institutes. If you have questions about 2016 MELT institutes, please contact Dr. Mike Bossé, Director of MELT, at 828-262-2862 or bosssemj@appstate.edu.

SPRING SCIENCE SEMINARS

The final seminar of the 2015-2016 series is part of this year's North Carolina Science Festival. All seminars are open to everyone, are free, and offer license renewal credits (0.2 per seminar) to teachers. The seminars are held in room 124C in the Reich College of Education Building from 6:30-8:00 p.m. with refreshments at 6:00. The remaining seminar in this year's series:

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

This year's theme, Science and the Environment, has been a popular one with seminars averaging 21 participants in the fall. The seminars have explored numerous themes over the years. We are considering having next year's seminars focus on scientific literacy, a theme that several attendees have expressed as an interest. If you have ideas of themes that you would like to see explored, please share them with me at johnsnpe@appstate.edu. Once they are finalized, next season's seminars will be announced on our website and will start in September, 2016.

New Course in STEM Leadership Offered by MELT Program

As part of the summer 2016 lineup of MELT courses, Dr. Tracie McLemore Salinas will lead a course in STEM Leadership targeted at middle and secondary grades teachers, coaches, or administrators charged with developing STEM programs in their schools. The course, offered July 11-15, will combine authentic integrated mathematics and science activities with practical explorations of current research in STEM education, planning and implementing long term STEM agendas, and using guiding documents, such as the NC STEM School materials. Additional information can be found at melt.appstate.edu under Summer Institutes or by emailing Dr. Salinas at salinastm@appstate.edu.



ON-GOING CENTER ACTIVITIES

The MSEC is always pleased to host math or science programs for students visiting the ASU campus. In addition to programs on campus, we are glad to arrange for programs to take place at your school. Popular programs that we can schedule for your campus include Family Math Nights and Family Science Nights for elementary and middle schools and geology presentations for Grades 3-9. Geology presentations are available on rocks, minerals, North Carolina geology, the Blackbeard shipwreck, and many other topics by special request. You may keep up with math and science activities taking place at ASU on our website, www.msec.appstate.edu, and at <http://stem.appstate.edu>. Print copies of the newsletter are widely distributed and the newsletter is also available on the MSEC website. If you are a K-12 teacher, we encourage 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.



NORTH CAROLINA SCIENCE FESTIVAL, April 8-24, 2016

A one-day ASU STEAM (Science, Technology, Engineering, Arts and Mathematics) Expo will be held on campus on Friday, April 22 as part of the sixth annual North Carolina Science Festival. The Expo event will be in the Holmes Convocation Center from 9:00 a.m. - 2:00 p.m. with other stand-alone events in Plemmons Student Union and other places on campus. The STEAM Expo is on a weekday so that schools can come to campus for a field trip and have their students experience some awesome science activities. Approximately 2000 students annually participate in ASU's Expo activities. This year's MSEC Expo booth will have a number of displays along with science activities led by Judy Sink and Lou Moore, science educators who for many years have done the popular Center-sponsored family science nights. The booth will also feature math activities led by Betty Long, Professor of Mathematical Sciences and Assistant Director of the Mathematics and Science Education Center. For more information about STEAM Expo and other activities taking place at Appalachian State University during the festival, visit <http://ncsciencefestival.appstate.edu>. To book your class or homeschool group for the Expo, contact Tracey Tardiff (tardiffa@appstate.edu).

NCCTM MATH CONTEST

The Department of Mathematical Sciences and the MSEC will host the Appalachian State University Math Contest for Level I and Comprehensive on Wednesday, April 6, 2016. Registration forms and information are on the Math Contest website: <http://mathsci.appstate.edu/news-events/math-contest>. Registration cost is \$10 per student and includes a T-shirt. Teachers can participate in a professional development session led by a Mathematical Sciences faculty member and earn license renewal credit through the MSEC. Deadline to register is March 16, 2016. Contact Lori Tyler (tylerle@appstate.edu) with any questions.

ELEVATING MATHEMATICS!



A competition for grades 4-6 returns to Boone for the sixth year on Thursday, April 14. Teams of 5 will compete in individual and team portions of the competition. After each session, friendly guides will walk through the solutions to make sure everyone goes home feeling good about learning some math. The competition will be held in the ASU Plemmons Student Union in the Grandfather Mountain Ballroom. Registration for the event is \$25

per team. A small snack is included and every student goes home with a memento of the event. Details and registration directions are available on the website at <http://www1.appstate.edu/~marland/elevatemath.html>. Each team must bring a mentor or chaperone - these volunteers will help proctor and grade to keep our costs down.

NORTHWEST REGIONAL SCIENCE FAIR

The Mathematics and Science Education Center was pleased to host this year's North Carolina Region 7 Science and Engineering Fair on December 15, 2015.

Student science projects from Grades 3-12 were on display in the College of Education Building on the ASU campus. A total of 82 elementary level projects, 134 middle school level projects and 41 high school level projects were registered for the Science Fair. In addition to the regional science fair, there were 61 research papers presented by students in the afternoon Student Academy of Science competition. Under the able direction of Avery County High School science teachers Coleman Bailey and Sue Purser, a large number of school personnel worked to assure the success of the fair. Judges consisted of teachers, upper-level university science students, professors, and scientists and engineers from industry. Between sessions, science education instructor Jeff Goodman entertained students, parents and others with an awe-inspiring science show. Appreciation is expressed to the large number of volunteers who helped make this year's event such a success. Congratulations to the students whose research projects were selected to attend the state level North Carolina Student Academy of Science competition on April 8, 2016 at the NC School of Science and Math in Durham, and to those who will advance to the state level Science and Engineering Fair at Meredith College in Raleigh on April 2, 2016. The list of North Carolina Fair winners chosen from the ten regional science and engineering fair winners are posted at <http://www.ncsciencefair.org>.



SUMMER VENTURES IN SCIENCE AND MATHEMATICS



Summer Ventures
IN SCIENCE & MATHEMATICS

Summer Ventures in Science and Mathematics 2016 applications were due January 31, 2016 for the programs to be held at Appalachian State University, East Carolina University, and the University of North Carolina at Charlotte. The program is down to only three campuses this summer and we continue to have many eligible students apply. The program is cost-free and high school students apply during their sophomore or junior years. Summer Ventures is coordinated through the North Carolina School of Science and Mathematics and students study and conduct research for four weeks on a university campus. Lori Tyler, ASU Director, is available for school visits to share recruitment/program information. Please contact Lori (tylerle@appstate.edu) or visit <http://www.ncssm.edu/summerventures>.



SUMO BOTS ARE COMING BACK TO BOONE IN APRIL

Saturday, April 23 will see Sumo Bots coming back to Boone in a big way. As a part of the North Carolina Science Festival for the past 4 years, this year the event moves to a larger venue

at AppState's Holmes Convocation Center. There will be multiple age categories, including adult, so there are no excuses for missing this event. Parent-child teams are encouraged. Registration for the event is \$20 per team and registration forms and more detailed information can be found on the Sumo Bot home page at <http://www1.appstate.edu/~marland/robots/sumosumo.html>

Don't have the inclination or time to enter your own team? Come out and watch. There may be a few surprises in store for the spectators!

NCDPI SCIENCE SUMMER INSTITUTES

The North Carolina Department of Public Instruction is supporting several free Science Summer Institutes around the state this summer. For our region, the institute will be held August 3-4 in the Reich College of Education Building on the ASU campus. In the workshop, participants will use Revised Bloom's Taxonomy and other national documents to unpack the North Carolina Science Essential Standards. Participants will collaborate with their colleagues and NCDPI staff to gain a deeper understanding of alignment and use that knowledge to improve the alignment among the standards, instruction and assessment within the context of unit and lesson design. Participants will receive free resources and CEUs. To apply, contact Marilyn Johns at marilyn.johns@dpi.nc.gov

SVSM TEACHER FELLOW PROGRAM

For Summer 2016, Summer Ventures in Science and Mathematics will be offering an opportunity for early career teachers (years 3-10) to gain additional content, methodological, and pedagogical experience working directly with Summer Ventures students and research faculty. Summer Ventures Fellows will be selected to serve at a campus with a faculty member and class that fits with their content and pedagogical goals. The Fellow will work in collaboration with the faculty member to design, develop, test and review lessons and activities, building students' ability to embark on their self-selected research topic and supporting them through the completion and presentation of their work. To be eligible to apply, teachers must be employed by a public school in a North Carolina 2016 Tier 1 or Tier 2 County, be nominated by their superintendent, and be licensed in secondary science, computer science, engineering or mathematics. Selected SVSM Fellows will participate in professional development at the North Carolina School of Science and Math before and after the Summer Ventures programs, live on their assigned campus, and receive travel, room, board, training, and a \$5000 stipend. For additional information, visit: <https://docs.google.com/document/d/1JVP34UCVvMWdNVRUOrs6KIKRpYNa2tf3TANtmin8cE/edit?usp=sharing> or contact Melissa Thibault (thibault@ncssm.edu) or Lori Tyler (tylerle@appstate.edu). Applications are due March 1.

TEAMS Project Names First Noyce Scholars

The TEAMS (Teaching for Equity in Appalachia in Mathematics and Science) Project, a Noyce Scholarship program funded by the National Science Foundation (NSF), has named its first group of scholarship recipients. Seven students from mathematics and science disciplines have committed to becoming high school teachers and have received initial scholarships of \$10,000 for the 2015-2016 year to continue their studies toward teacher licensure. Recipients are: Rebecca Claire Montgomery (Mathematics), Alana Patterson (Biology), Lauren Lowman (Physics), Chris Kolischak (Earth and Space Science), Kathryn Bailey Stowe (Biology), Chris McCollum (Physics), and Alexis Gar (Biology). TEAMS Scholars participate in activities related to equity and working with diverse learners and receive travel money to attend conferences for state professional organizations in teaching. Additional scholars will be named in March as recipients for the 2016-2017 year. Applicants must be current majors or graduates in a mathematics or science (biology, chemistry, geology, or physics) discipline and must meet academic requirements for the program. In addition, scholarship recipients commit to teaching in high needs schools for a minimum of two years for each year of funding received. The Noyce Scholarship Program at NSF provides support to outstanding majors in mathematics and science in becoming licensed teachers. More information, including an application, can be found at noyce.appstate.edu.

ACADEMIC SUMMER CAMPS AT APPALACHIAN

Many academic camps are offered at Appalachian each summer for students. Be sure to check out the Office of Conferences and Camp Services at: <http://conferences-camps.appstate.edu/youth-camps>. The Future Doctors and Scientists Camp is being supported by the MSEC and we encourage students in Grades 9-12+ who are interested in health science and/or research professions to apply. Dates for 2016 are July 4-27 and will include four days of intensive clinical instruction using a program called The Apprentice Doctor, and the remainder of the program will involve research in a biomedical science laboratory.



NCCTM NEWS

NCCTM Spring Leadership Seminar

The NCCTM Spring Leadership Seminar will be held on April 8 from 9:00 a.m. to 3:30 p.m. at the Greensboro-High Point Marriott Airport Hotel. The theme of the seminar is "Gates Wide Open in North Carolina: Working Toward Mathematics for All," and the speakers will be Mariella Duarte-Valdes and Anthony Fernandes from UNC-Charlotte, Alejandra Sorto from Texas State University, and Lee Stiff from North Carolina State University. This seminar will challenge, inspire, and equip leaders and teachers to better enable their students mathematically. The primary focus will be on working with minority students and

English Language Learners. The registration fee is \$65 for NCCTM members and \$75 for non-members. This includes a continental breakfast and lunch. To register for the leadership seminar, go to ncctm.org.

NCCTM WESTERN REGION MATH FAIR

The NCCTM Western Region Math Fair will be held on Saturday, March 19, 2016 in the Plemmons Student Union at Appalachian State University for students in Grades K-12. The math fair is coordinated by Sumer Inman at North Buncombe High School, Stefanie Buckner in Buncombe County Schools, and Susan Jones at Cleveland Community College. Fifty ASU pre-service teachers and other volunteers will assist them. We encourage K-12 teachers to enter students in the math fair. It is a wonderful experience that enables students to work on a math project as well as gain experience communicating mathematics. The students who place First, Second, Third, or receive Honorable Mention will be invited to participate in the NCCTM State Math Fair to be held on Friday, May 13, 2016 at the North Carolina School of Science and Mathematics in Durham. Visit <http://tinyurl.com/ncctmwestmath> for more information on the Western Region Math Fair and to fill out the online registration form located on the Participant or Parent/Teacher page. The registration fee is \$8 per student, and payment must be postmarked by February 24, 2016.

NCCTM Fall Leadership Seminar and Annual State Mathematics Conference

The Fall Leadership Seminar will be on October 26 at the Koury Convention Center in Greensboro. Go to ncctm.org for more details as they become available.

The 2016 State Mathematics Conference will be held on October 27-28 at the Koury Convention Center in Greensboro. The theme of the conference is "Leaping Forward: Teaching & Learning, Equity, Curriculum, and Assessment." Go to ncctm.org for more details as they become available.

DATES TO REMEMBER

February 27: NCCTM Western Region Mathematics Conference, Heritage Middle School, Valdese, NC

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

March 19: NCCTM Western Region Math Fair, ASU

April 6: Regional NCCTM Math Contest, ASU

April 8: NCCTM Spring Leadership Seminar, Greensboro, NC

April 8-24: North Carolina Science Festival

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

April 14: Science Seminar, ASU

April 14: NCCTM State Comprehensive Math Contest Final, NCSSM, Durham, NC

April 22: STEAM Expo Day, ASU

April 23: Sumo Bot Competition, ASU

April 28: NCCTM Western Region Math Contest Finals (Level 1, 2, 3), UNC Asheville

May 13: NCCTM State Math Fair, Durham, NC

June 27 – July 1: MELT Week 1

July 11-15: MELT Week 2

July 18-22: MELT Week 3

July 2-30: Summer Ventures in Science and Mathematics at ASU

October 19: NCSLA Fall Meeting, Greensboro, NC

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

October 26: NCCTM Fall Leadership Seminar, Greensboro, NC

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

MSEC ADMINISTRATIVE ASSISTANT RETIRING

Long-time Administrative Assistant Vickey Isaacs will retire at the end of March. Vickey has worked at ASU for more than 28 years. She began her career at ASU as a cashier in Food Court for one and a half years followed by nine years in the Graduate School. She joined the Mathematics and Science Education Center as Administrative Assistant in 2005 after having served in a similar position in the Department of Biology for seven years.



I know that those of you who use the resources of the Math/Science Center join me in expressing gratitude for Vickey's helpfulness in locating materials, managing license renewal credits, and the many other things that she does. Needless to say, although we will miss her, we wish her well in her retirement. Vickey will be honored on March 21 at the Center's annual Advisory Board meeting. Following the Advisory Board meeting, everyone is invited to an open house drop-in from 1:00-3:00 p.m. in the Mathematics and Science Education Center on the first floor of the Reich College of Education Building. Please join us for refreshments and to wish Vickey a happy retirement.



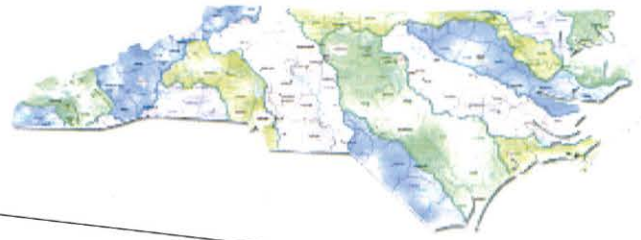
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MSEC Staff: Phillip Johnson Director; Betty Long, Assistant Director; Lori Tyler, Summer Ventures in Science and Mathematics Director; Vickey Isaacs, Administrative Assistant



NOTES FROM THE DIRECTOR

Those of us in the Mathematics and Science Education Center and the teachers and students who use the Center materials will miss Vickey after she retires at the end of March. She has done an excellent job as the Center's Administrative Assistant for the last eleven years. We wish her well as she retires to pursue other interests.

We have a full semester of math and science activities on campus this spring. We also have math and science workshops in the schools as well as numerous programs for students both on campus and in the schools. This summer the MELT program is offering twelve institutes spread over three weeks in June and July. We are fortunate to be hosting one of the NCDPI Science Summer Institutes in August. We anticipate again having the "Inspiring Innovation in Student Research" workshop sponsored by the North Carolina Science and Engineering Fair, Biogen Foundation, and Appalachian State University, probably during July. Check our website for updates on MSEC activities.

My thanks to the contributors to the spring 2016 newsletter: Mike Bossé, Vickey Isaacs, Betty Long, Eric Marland, Coleman Bailey, Sue Purser, Tracie Salinas, and Lori Tyler.

Phil Johnson