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Life is not a matter of holding good cards, but of playing a poor hand well.

- Robert Louis Stevenson

How to tell students what to look for without telling them what to see is the dilemma of teaching.

-Lascelles Abercrombie

Tell me and I'll forget. Show me, and I may not remember. Involve me, and I'll understand.

-Native American Saying
Director’s Comments

I am excited to be the director of the Tennessee STEM Education Center at MTSU (formerly the Tennessee Mathematics, Science and Technology Education Center [TMSTEC]). I appreciate the work done by previous director E. Ray Phillips, Rick Vanosdall, and Dovie Kimmins. Many exciting things are happening in STEM education at MTSU. Our MTeach program is achieving amazing success that will help bring better prepared STEM majors to our campuses in the future. The Math Science Education Ph.D. students are beginning to engage in exciting science and math education research. The new science building promises many new opportunities for collaboration among faculty and students. The new leadership in the college and the departments will bring new ideas and new visions. The Center for Botanical Medicine has the potential to help cure some of the major diseases of our time. MTSU STEM faculty are engaged with students in original research at all levels and still committed to being good teachers. STEM students continue to achieve amazing national success, winning top honors over students from the best universities in the U.S. Our outreach programs remain strong and have far reaching influence on Tennessee students and their families. It is a pleasure to be part of a vibrant, caring community of teacher scholars. Please contact me (Tom Cheatham) at my new number 615-494-8738 or by email Tom.Cheatham@mtsu.edu if the Center can be of assistance to you.

Director
Tennessee STEM Education Center
Tom.Cheatham@mtsu.edu
615-494-8738
New Dean of Basic and Applied Sciences

Dr. Robert "Bud" Fischer has been the chair of the Biology Department at the University of Alabama Birmingham since 2008. He is an active researcher doing work on Aquatic Ecology and Evolutionary Biology.

Dr. Fischer is a student advocate and his new role will bring many opportunities to interact with student clubs, cohorts, research groups, student teams and classes. Faculty and departments will want him to participate in their celebrations, seminars, special lectures, faculty meetings and more. He will have opportunities to interact with alumni and donors individually and in groups. His work will involve program development, policy setting, encouraging and recognizing quality work and programs, and occasionally serving as referee, all making for an exciting and challenging position.

Dr. Fischer assumed his new role August 1, 2012 and has been very busy with the start of a new year.

The Wait is Over: New Science Building Funded

The long-awaited new MTSU science building was finally approved for state funding. This landmark event was only possible due to the strong support of Governor Haslam and the MTSU legislative delegation and the tireless persistence of President McPhee. The groundbreaking ceremony removed all the doubts from the minds of faculty and students that the building will become a reality. Construction began immediately and is running ahead of schedule. This new building and the three new Ph.D. programs will forever change science at MTSU. It was a proud day for the College of Basic and Applied Sciences and MTSU.

The 287,000 ft² structure, located next to the Walker Library, will become home to the departments of biology and chemistry and the new Ph.D. programs. For the first time in history, MTSU will have a real animal facility for faculty whose research relates to animals. The facility contains exciting new collaboration spaces for students and faculty, modern laboratories for teaching and research, a beautiful atrium with food, places to chat, eat and display posters. The building will magnify the community of scholars that already exists in the sciences in a way that makes the total greater than the sum of the parts. It will bring science to its rightful place at MTSU, front and center.
Through his relationship with Vice-Governor Chen (from Guangxi Province, China), President McPhee created a partnership between MTSU and Guangxi Botanical Garden of Medicinal Plants (GBGMP), Nanning, China. GBGMP has the largest collection of plants used in traditional Chinese Herbal medicines in the world. There is hope that these herbal medicines may contain the secrets to curing diseases like Alzheimer's and certain forms of cancer. The Tennessee Center for Botanical Medicine (TCBM) brings together this large collection of Guangxi herbal extracts and MTSU scientists who are working to identify and classify active ingredients. MTSU biologists, chemists and Ph.D. students from the Molecular Biosciences and Computational Science Ph.D. programs are working together under TCBM. Dr. Elliot Altman is the Director of TCBM and the Director of the MTSU Molecular Biosciences Ph.D. program. Dr. Iris Gao, a former student of Vice-Governor Chen, is a research associate in the Center.

Hyperwall and 3D Visualization Lab

Computational Chemist, Dr. Anatoliy Volkov, envisioned a computer cluster capable of heavy calculations such as those required to model molecular interactions resulting from the use of a drug and enough graphical power to display and provide 3D interactive visuals of these interactions. The hyper wall he and computational science colleagues built in KOM 162 consists of a
4x4 grid of monitors which can work independently or in any combination to display results of calculations. The graphics cards are the best available and each has thousands of processors which can also be used for calculations. Each computer has multiple graphics cards, creating a powerful system in the MTSU Visualization lab. In addition to Dr. Volkov, the Computer Science Laboratory Director, Mr. Neal McClain, the cluster Manager, Mr. Jason Renner. Dr. John Wallin, Director of the Computational Science Ph.D., and several graduate and undergraduate students have worked on and with the new systems.

New MS-PS Concentrations

The Master of Science in Professional Science (MS-PS) is the fastest growing masters program at MTSU now serving over 100 students in the three original concentrations (Bioinformatics, Biostatistics and Health Care Informatics) and the newest concentrations—Actuarial Science, Geosciences and Engineering Management (approved in summer 2012).

Director of MS-PS, Associate Dean Saeed Foroudastan, has consulted with TBR about taking the Professional Science Masters (PSM), the national name for programs similar to our MS-PS, state-wide.

Passing of a CIM Patron

Since the inception of the Concrete Industry Management (CIM) program, Mr. Jim Speakman was synonymous with CIM. Anytime there was a success or an issue to be dealt with, Jim Speakman and Ward Poston were present and working for the program. When Dr. McPhee came, when Tom Cheatham became dean, each time a new provost was named; Jim and Ward
arranged a meeting to educate us about CIM. Jim was not only a local leader for CIM, but he was respected nationally for his commitment, service and love for the CIM program. The national concrete industry and MTSU owe much to the commitment and support of Jim Speakman who died of a heart attack one day before he was scheduled to fly to Las Vegas to represent MTSU Patrons at a meeting of the CIM National Steering Committee. His dedication and persistence will be missed, but his legacy will continue to inspire and challenge a new generation of CIM supporters.

**Successful K-12 Outreach Programs**

Expanding Your Horizons (EYH) and Science Olympiad have been encouraging students in STEM for many years. EYH, directed by Dr. Judith Iriarte-Gross (CHEM), gives middle school girls an opportunity to learn about careers in STEM from role models. Attendees participate in hands-on activities focused on a STEM career. The program has been expanded to the high school level. Drs. Patricia Patterson and Amy Phelps (both Chemist) organize the Science Olympiad competition at MTSU. Middle and high school students compete individually and in teams for top prizes in several areas of Science. State Farm Insurance provides scholarships to each participating school to cover the cost of participating. The program has been expanded to elementary grades. Both programs have been well-organized and very successful thanks to great leadership from science faculty.
Camp PRISM Continues to Inspire Students

Camp PRISM is a partnership between the Murfreesboro City Schools and MTSU to provide opportunities for elementary school children to learn about STEM. PRISM stands for "Practices in Science and Mathematics." Each summer Dr. Rebecca Calahan (MTSU Math professor) and Dr. Linda Gilbert (Director of Murfreesboro City Schools) organize the action-packed camp for about 30 City School students. Dr. Calahan received a MTSU Foundation Award in part for her outreach work with Camp PRISM. Students learn math and science from outstanding teachers and from visits around Murfreesboro to see math and science in action. It is an exciting experience for a luck group of Murfreesboro City School students. Drs. Gilbert and Calahan are to be commended for making science and math fun for Murfreesboro students.

FirstSTEP toward Success in STEM

The NSF-STEP project called FirstSTEP is working to assist STEM majors whose mathematics preparation was poor. FirstSTEP recruits a cohort of up to 50 first-time, full-time freshmen STEM majors at MTSU whose math ACT is between 19 and 23 inclusive and provides two years of interventions to help the cohort succeed in their chosen STEM major.

Mathematics is a weakness for many of our STEM majors, but mathematics is critical for success in STEM. The FirstSTEP cohort enrolls in a two-week math bridge program in July before they begin college in August. The bridge program tries to identify and address specific algebra deficiencies on an individual basis. Ms. Elaine Tenpenny organizes and supervises the bridge. Students enroll in pre-calculus and a FirstSTEP seminar in the fall. Co-PIs Drs. Ginger
Rowell and Chris Stephens have taught the seminar. Dr. Stephens also organizes the summer STEM Immersion, a four week research-like experience during the summer after their freshman year. Dr. Rowell organizes and manages the team activities on a daily basis and runs the weekly team meetings. Support is provided by Co-PI Dr. Don Nelson, Chair of Mathematics, Dr. Tom Cheatham, co-coordinators Mr. Brad Rudnik and Ms. Teresa Walls and Ph.D. students Jennifer Yantz and Brittany Smith. It takes a village to correct math deficiencies.

The grant has produced several national presentations and one national article; other articles are being written. We hope to learn (1) which students with poor math preparation we can help succeed and (2) what interventions and curriculum changes are most effective in addressing the math deficiencies of MTSU STEM majors.

**Fulbright Scholar Visits MATH**

How does a professor from the University of Bahrain in the Kingdom of Bahrain choose MTSU for her Fulbright experience? Dr. Thuraya Abdulla who teaches Mathematics at the University of Bahrain wrote her dissertation under Professor Abdul Khaliq (MTSU MATH) when he was at Imperial College in London - UK. She came to MTSU to work with Dr. Khaliq and to learn more about actuarial mathematics and mathematics education. Drs. Abdulla and Khaliq are conducting research on Black-Scholes equations for option pricing. She collaborated with our Actuarial Science faculty on curriculum for financial mathematics and participated in seminars and conferences with our Math and Science Ph.D. faculty and students. Dr. Abdulla was at MTSU from September 2011 through March 2012. Drs. Hillary Stallings and Kaylene Gebert were very helpful at engaging Dr. Abdulla in the life of the university community. It was a pleasure to have Dr. Abdulla as our guest.

**Another Fulbright and Goldwater**

The Honors College is working hard to help talented MTSU students compete for national awards. CBAS provides some excellent students. In 2010-11, CBAS had two Goldwater Scholars and an honorable mention plus a Fulbright Scholar studying in Germany. This year, 2011-12, Daniel Gouger, a biochemistry and Spanish double major will spend a year as a Fulbright Scholar in Madrid, Spain before applying for Medical School. Daniel will be studying at the Institute for Research in
Biomedicine, focusing on molecular dynamics and molecular modeling until June 2013.

Sophomore Chemistry major, Jordan Dodson, won a prestigious Goldwater Scholarship to help fund graduate school. Though only a sophomore, Jordan is already an accomplished researcher whose work with Dr. Norma Dunlap (CHEM) was published in Organic Letters. Jordan is working on computational chemistry research with Dr. Preston MacDougall (CHEM). Both young men have bright futures and we are proud to be part of their education. Special thanks to Ms. Laura Clippard and Dean John Vile for their work on behalf of our excellent students.

**Senator Tracy Leads State STEM Caucus**

Chemistry professor, Dr. Preston MacDougall was instrumental as an agent of the Nashville Chapter of the American Chemical Society (ACS), in creating the first (in the U.S.) state STEM Education caucus. Senator Jim Tracy of Shelbyville, TN, a great friend of MTSU, is a co-chair of the STEM Caucus along with Senator Reginald Tate of Memphis, TN, Representative David Hawk of Greenville, TN and Representative Brenda Gilmore of Nashville, TN. The Caucus was launched with a meeting at the Capitol in spring 2012 on the "State of STEM Education in Tennessee" for which Dr. MacDougall served as master of ceremonies. Speakers included Senator Tracy, Dr. Sally Pardue, President of the Tennessee STEM Leadership Council, Mr. Eric Fingerhut, Battelle Vice President for Education, Ms. Sky Gallegos, director of Tennessee STEM Innovation Network, and Dr. Katherine Earhart, Assistant Commissioner, Tennessee Department of Education and former Director of Putnam County Schools. In attendance were legislators from both parties and houses and STEM leaders from across the state.
Oak Ridge Associated Universities (ORAU) is a university consortium leveraging the scientific strengths of major research institutions and national laboratories to advance science and STEM education through partnerships with national laboratories, government agencies, and private industry. ORAU manages the Oak Ridge Institute for Science and Education (ORISE) for the U.S. Department of Energy (DOE). ORAU’s Center for Science Education was created to support a fundamental, national need for improvements in STEM education. As a full sponsoring member, MTSU faculty and students have opportunities to win members only grants and internships and to participate in laboratory research at DOE facilities across the country including the Oak Ridge National Laboratory. Special thanks are due Vice Provost for Research, Dr. Mike Allen and Dr. Andrienne Friedli who arranged the review visit by ORAU president, Dr. Andy Paige, a native of Murfreesboro.

CIM Auction Nets over $600K

In an attempt to tap the resources of the broad concrete industry, MTSU CIM graduate and CIM Patron Chris Davenport organized the first national CIM auction as part of the World of Concrete (WOC) Conference in Las Vegas. The first auction was such a success that the CIM National Steering Committee (NSC) took over the auction as its major annual fund raising event. Even through the severe economic downturn, the industry has continued to support the five CIM programs through the proceeds from the CIM Auction. The CIM Auction held, in
conjunction with WOC, in Las Vegas each January or February, requires much work to organize. Former chair of the NSC and current Executive Director of NSC, Mr. Eugene Martineau, has been a strong supporter of the auction, engaging many of his influential friends from the industry in support. Auction funds support CIM activities at the five CIM universities. The 2012 CIM Auction netted over $600,000. Heather Brown is the Chair of the CIM Department.

**Executive MBA in CIM**

It was nearly 20 years ago that the concrete industry leaders discussed the creation of an undergraduate degree that mixes the technical side of concrete with a business management component. The first CIM program/degree was created in the mid 90s at MTSU. The industry and MTSU have now created an executive style MBA focusing on the concrete industry. This program will be offered jointly by the Jennings A Jones College of Business and CIM and was created with significant industry input. Dr. Heather Brown (Chair of CIM) and Dean Jim Burton deserve credit for working out the details for the degree. The cohort program has recruited its first class to begin in fall 2012.

**Posters-at-the-Capitol**

Seven MTSU students led by Dr. Andrienne Friedli, Director of the MTSU Center for Undergraduate Research, presented their research at the 6th Annual Posters-at-the-Capitol in
Nashville in February 2012. The event was created and is organized state-wide by Tom Cheatham from MTSU. Former Representative John Hood was instrumental in the creation of the event and continues to contribute to its success. Students from all nine public universities in Tennessee participate. MTSU participant are pictured with Governor Haslam, President McPhee and Representative Joe Carr of Murfreesboro. Senator Bill Ketron office was key to the success of the 2012 event. He and Senator Jim Tracy always take time to talk with our students while they are at the Capitol.

STEM Faculty Visit NSF Program Managers

Extramural funding becomes more important with each passing budget cut for higher education in Tennessee. MTSU faculty are encouraged to win funding for research, outreach and education projects. Writing winning grant proposals requires skill, persistence, collaboration, and a bit of luck. There are competitions where fewer than five percent (5%) of proposals are funded. As a rule around 20% of the more than 40,000 proposals to the National Science Foundation (NSF) are funded each year. Obviously, we need to take advantage of every opportunity to improve our success. It makes sense that the more you know about what the funding agency wants the better your chances. Once we have identified a specific program at a funding agency, we should carefully read the solicitation/Request for Proposal (RFP), put a team and plan together for a proposal, and chat with and/or visit a program officer for the program. Who knows best what the agency is looking for—the individuals who manage the specific funded programs. You can learn a great deal through email and phone conversations, but a face-to-face meeting is even better.

Vice Provost for Research, Dr. Mike Allen, funded a one-day trip to Washington DC for a group of STEM and STEM education faculty in May 2012 to visit with NSF program officers. Participants included Jeff Walk, Ashley Morris, Ryan Otter, Anatoliy Volkov, Chengshan Wang, Andrienne Friedli (co-organizer), Leigh Gostowski (MTeach), Angela Barlow (Math Ed) and Tom Cheatham (co-organizer). The meetings were productive and faculty were encouraged to submit proposals.
ET Open House and Awards Ceremony

The Engineering Technology (ET) Department hosts an annual end-of-year celebration of faculty and student successes. They display undergraduate capstone projects, applied research and other student projects including Dr. Foroudastan's Experimental Vehicle Projects: moon buggy, baja, solar boat and Formula SAE vehicle. They present awards and scholarships honoring their top students. The event grows each year with over 300 university and community participants in 2012. Special thanks to Dr. Walter Bowles (Chair), Dr. Charles Perry (Master of Ceremony) and Ms. Sally Swope (Executive Aide) who makes all the arrangements. It is a great celebration!

STEM Student Successes in 2011-12

The MTSU Residential and Land Development Construction Management Technology program continues to dominate the National Association of Home Builders annual competition. Again this year (2012), the MTSU team won 1st place among 40 teams nationally. They are often in
the top 5. The team designed a 22-acre subdivision in a flood plane in Huntsville, Alabama. Their 150-page proposal included market analysis, sales strategies, scheduling, estimating, infrastructure and house plans, sustainability, cash flow and a management approach. Dr. David Hatfield is the program director and faculty sponsor. The team was supported by Regent Homes, Citizens Homes, LP Building Products, Regions Bank, Little John Engineering, and the program’s Industry Advisory Board chaired by Mr. David Hughes.

Not to be outdone by the construction team, a team of CIM students won an international competition hosted by the American Concrete Institute to create a concrete bowling ball with a specific weight and strength. They had to bowl three rolls with the ball. The CIM student team with faculty mentor Dr. Jerry Morton won over 36 engineering schools.

Ashley Harvey, undergraduate researcher in STEM education presented a peer-reviewed poster titled "Tennessee History and Sciences: An Innovative Learning Community to Improve Student Learning" at the 2012 NCSCE (National Center for Science and Civic Engagement) Washington Symposium and Capitol Hill Poster Session. Harvey is mentored by Dr. Judith Iriarte-Gross (CHEM) and Dr. Mary Hoffschwelle (History) Harvey also presented her poster along with Rachel Davies (Tennessee Women In Chemistry: The Bio Project) at the 244th American Chemical Society Meeting. Both women presented in the Undergraduate Research Symposium of the Division of Chemical Education. They were also invited to showcase their work at the SciMix where only 25 research presentations are accepted.

Four Computer Science students accepted summer 2012 internships at Oak Ridge National Laboratory. Interns are Brian Cuff, Austin Hill, Mark Keele, and Alex Williams. Daniel Gouger and Jake Bashan, chemistry majors, each presented a poster on their research at the National meeting of the American Chemical Society in San Diego, CA.

Daniel Bonior, an undergraduate physics major working with Dr. Erenso presented his undergraduate research at the International Conference on Quantum Information and Measurement in Germany in March 2012. The research was funded by MTSU's Undergraduate Research Experience and Creative Activity (URECA) and involved analytic calculations of the occurrence of Bell State type 2 entangled photons with two uncorrelated photon sources.
The MTSU secondary math and science program built on the success of the University of Texas, Austin’s UTeach program continues to increase the number of future math and science teachers each semester. Dr. Amy Phelps and Ms. Leigh Gostowski who coordinate the program for the College of Basic and Applied Sciences are working with education colleagues to develop new courses and strategies to better train and equip future teachers. MTeach’s goal is to recruit 50 new potential math and science teachers each semester and they are meeting or exceeding this goal. In addition to increasing quantity, the experiences in classroom, the engagement in research, the practice with active-learning pedagogies and the tremendous mentoring by the MTSU Master Teachers are creating strong, capable, creative teachers.

A very impressive partnership with the Physics and Astronomy Department has led to a huge increase in the number of future high school physics teachers. For years, we did not graduate even a single physics teacher. With 16 future physics teachers in the MTeach program, this is about to change. Much credit goes to Dr. Ron Henderson, Chair of Physics and Astronomy, and the faculty of the department who determined that being a good high school physics teacher was an honorable career choice for a physics graduate. The NSF Robert Noyce Scholarship grant that provides $10,000+ per year scholarships to future physics teachers does not hurt either. It is exciting to think that we could soon graduate more physics teachers than the rest of the state combined.

**Progress of the STEM Ph.D. Programs**

The Ph.D. program in Molecular Biosciences (MOBI), Computational Science (COMS), and Mathematics and Science Education (MSE) have completed two successful years. Students are progressing in their course work and research, seminars are exposing students and faculty to the work of leaders in their fields, students are passing qualifying exams and our first two students have graduated, Dr. Misganaw Gebru and Dr. Basil.
Naah were the first graduates of the Chemical Education program, mentored by Amy Phelps and Michael Sanger, respectively. Faculty are developing new courses, new policies and procedures, teaching, mentoring, doing research and writing proposals. President McPhee and Provost Bartel have been supportive of finding office space for GTAs and research space, as well as funding new positions. MSE is the largest program with 37 students, COMS enrolls 29 and MOBI has 23 students. The programs are all healthy and the directors are working to make sure they succeed.

**STEM Faculty Awards**

Dr. Cindi Smith-Walters, associate Professor of Biology and director of the Center for Environmental education received a Project Learning Tree Outstanding Educator award for 2012. This national award is presented annually to educators who exemplify excellence in teaching and learning about the environment through the use of Project Learning Tree curriculum materials. Dr. Smith-Walters received the award at the 26th annual conference of Project Learning Tree in South Dakota in May 2012.

Judith Iriarte-Gross, Chemistry professor and director of the MTSU Women in STEM Center, was invited to the "White House Champions of Change" a celebration that recognizes organizations that recruit and retain girls in STEM. Dr. Iriarte-Gross organized "Girls Raised in Tennessee Science (GRITS)," "Women in STEM (WISTEM)," and "Expanding Your Horizons (EYH)."

The Tennessee Academy of Science (TAS)) honored two MTSU faculty at its 2011 meeting in November. Retired Chemistry professor, Dr. Jim Howard, received an Outstanding Service Award for his years managing the TAS website and other service to TAS. Dr. Gore Erwin, Biology professor, was named a TAS Fellow for his long-time service as Editor of the *Journal of the Tennessee Academy of Science.*
STEM Leadership Changes

Drs. George Murphy, Earl Pearson and Tom Cheatham are all stepping aside from leadership roles in STEM. Dr. Murphy chaired the Biology Department for 32 years and saw the growth of programs (B.S., M.S. and Ph.D.), student majors (now over 700) and faculty (now over 45). Dr. Murphy is joining the post-retirement program and will focus on preparing for accreditation of the new B.S. in Forensic Science program.

Dr. Earl Pearson became chair of the Chemistry Department in August of 1998 and led the department through the creation of a new B.S. in biochemistry, the conversion of the Doctor of Arts in Chemistry to the Ph.D. in Math and Science Education, and the design of the chemistry space in the new science building. Students majoring in programs under the Chemistry department number over 1300. Dr. Pearson will continue as a faculty member in Chemistry.

Dr. Tom Cheatham, former chair of Computer Science at MTSU (1990-98), was an administrator in the dean's office for 12 years (2000-2012) including one year as interim associate dean. Dr. Cheatham will direct the Tennessee STEM Education Center (TSEC) and focus on efforts to help faculty win STEM education grants.

New leadership includes Dr. Lynn Boyd, new Chair of Biology, Dr. Greg Van Patten, new Chair of Chemistry, and Dr. Bud Fischer, new Dean of the College of Basic and Applied Sciences. For more information on Dr. Fischer see the article “New Dean of Basic and Applied
Sciences.” Dr. Boyd was a professor at the University of Alabama in Huntsville prior to her appointment at MTSU. Dr. VanPatten was a professor at Ohio University prior to joining MTSU. Dr. Chrisila Pettey became the Chair of Computer Science, after serving as an interim for two years. Dr. Pettey has been a faculty member at MTSU since 1991.

Busy Year for TLSAMP

The Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) is a NSF-funded program to increase the graduation of under-represented STEM majors. TLSAMP, directed by Ms. Mimi Thomas, provides scholarships, research opportunities, tutoring, advising, counseling and other support for minority STEM majors.

Over the last year, MTSU hosted the four-week summer bridge for TLSAMP and the annual state-wide undergraduate minority research conference involving nearly 300 participants from across Tennessee. Participants in the alliance include Tennessee State University (lead), University of Tennessee Knoxville, Vanderbilt University, University of Memphis, LeMoyne-Owen College, and MTSU. MTSU graduated 82 minority STEM majors in 2011-12.
STEM Faculty Present Internationally

Dr. Preston MacDougall (CHEM) presented an invited talk at the 9th Congress of the World Association of Theoretical and Computational Chemists in Santiago de Compostela, Spain. His talk entitled "Volume Rendering in Tandem with Hyperwall Technology for a New Molecular Visualization-based Platform for Drug Design" is based on work he and other computational science faculty and students have been conducting in the new 3D Visualization Lab at MTSU. Dr. Andy Brower (BIOL) gave an invited talk at the 30th Annual Meeting of the Willi Hennig Society as part of the "History and Philosophy of Cadistics" symposium. His talk was entitled "Parsimony and Justification." Dr. Yuri Melnikov (MATH) made the keynote address "Alternative Forms of Green's Functions and Infinite Product Representation of Elementary Functions" at the International Conference on Computational and Experimental Engineering and Sciences held at Nanjing, China. Dr. Abdul Khaliq (MATH) was the keynote speaker at the 4th International Conference on Mathematical Sciences in the United Arab Emirates. The title of his talk was "Nonlinear Models in Mathematical Finance and Advanced Computational Techniques." Dean Tom Cheatham organized a panel and presented on “Deans and Data” at the Council of Colleges of Arts and Sciences in Vancouver, Canada. Congratulations to each of the internationally known faculty members.

Recruiting and Retaining Computer Science Majors

A National Science Foundation (NSF) Partnership for Innovation (PFI) grant proposes to recruit and retain more computing majors at MTSU. The grant, three year $600K project is led by Cen Li, Zhijiang Dong, and Tom Cheatham. Two other higher education institutions are partners—Nashville State Community College and Alabama A&M University in Huntsville, AL. The project, completing its third year, has offered seminars about the computing profession to high school classes, hosted summer computer camps at each higher education site, and funded teams of current computing majors to solve real-world problems for businesses and non-profits. A total of 22 projects have been completed by student and faculty teams. The one-week computing
camps have been a huge hit with younger high school students. MTSU has offered an Alice Programming camp (Brenda Parker), a robotics programming camp (Li) and a multi-media programming camp (Dong).

**STEM Education Research Conference**

MTSU hosted the 6th Annual STEM Education Research Conference at the Embassy Suites Conference Center on February 2, 2012. Dr. Gary Martin, Auburn University was the Mathematics Education Keynote speaker, Dr. Virginia Shepherd of Vanderbilt was the Science Education Keynote and Dr. Chris Singer, a lead engineer at NASA was the dinner speaker. A government panel consisting of Linda Jordan from the TN Department of Education, Katrina Miller from the Tennessee Higher Education Council, Sky Gallegos from the Tennessee STEM Innovation Network and David Sevier from the Tennessee Board of Education updated participants on their activities and a dozen faculty from across the state presented research on teaching and learning in STEM. Over 100 participants from private and public, 2-year and 4-year institutions, K-12 and government agencies attended. The conference was organized by Lee Ann Newton, Executive Aide in TMSTEC.

**MTSU and Science, Math and Technology Celebrate 100 Years**

On September 11, 2012 MTSU celebrated its 100th birthday as an institution of higher education. In 1911, science and biological sciences were taught at the Middle Tennessee Normal School along with Manual and Industrial Arts (now called Engineering Technology) and Agriculture. There was only one academic building known then as the Administration Building (now called Kirksey Old Main). In 1922, chemistry laboratories are mentioned and in 1925 the institution’s name was changed to Middle Tennessee State Teachers College. The science building known today as Wiser-Patten Science Hall was constructed in 1931 at a cost of $225,000. Chemistry and Physics occupied the first floor with Home Economics on the 2nd floor and Biology on the 3rd floor. Almost 90 years later, biology is still on the 3rd floor and chemistry uses the first floor with physics on the 2nd floor. In the 50’s the Aviation program
started as part of Industrial Arts. In 1968 the departments of biology and chemistry/physics moved into the new Davis Science Building continuing to use space in Wiser-Patten Science Hall. The mathematics department installed the first computer on campus in 1963 under the leadership of dr. Paul Hutcheson. Computer Science became a separate department from mathematics in 1986. Concrete Industry Management started as a program under Engineering Technology in the mid 90’s and became a separate department in 2010. The nursing program was part of the college of Basic and Applied Science (so named in the mid 90’s) and left the college to become part of a new college in 2010. In 2009 the Tennessee Board of Regents Approved three new Ph.D. programs for the college and in May 2012 the Tennessee General Assembly approved funding for a new science building.

**New Director of Mathematics and Science Education Ph.D. Program**

Dr. Angela Barlow took over on August 1 2011, as the new Mathematics and Science Education (MSE) Ph.D. Director, after a national search. Dr. Barlow has all of her degrees in Mathematics Education from Auburn University and has taught at the University of West Georgia, and most recently, at the University of Mississippi. She is a passionate teacher, committed to a strong research program, and has mentored eight Ph.D. students in math education over the last two years. We are delighted to have Dr. Barlow as a new faculty member in the Mathematical Sciences Department at MTSU and as the new leader of our MSE Ph.D. program. We are grateful for the wonderful work of Dr. Ginger Rowell over the last two years as our interim director.
Middle Tennessee State University, in its educational programs and activities involving students and employees, does not discriminate on the basis of race, color, national origin, sex, religion, or age. Furthermore, the university does not discriminate against veterans or individuals with disabilities.