



The Basic Facts

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The Basic Facts, College of Basic and Applied Sciences, Middle Tennessee State University, Murfreesboro, TN

National Women's History Month – Women in Science

The Science of Success

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March is National Women's History Month, so there are always a lot of interesting events and presentations. This year's was particularly important to the College of Basic and Applied Sciences (CBAS) because for the first time the focus was upon "Women in Science." A variety of on-campus and off-campus speakers provided a tremendous overview of science in general and women's perspectives in particular.

From a historical perspective, the featured woman for the month was Marie Sklodowska Curie (1867-1934). In 1981, she enrolled in the University of Paris to study physics – earning her master's degree in physics in 1893 and in mathematics in 1894. She was one of two women in Europe working on doctorates in 1897 and the first woman to win a Nobel Prize. She won a second Nobel Prize (in chemistry) in 1911, promoted the use of X-rays in World War I and was the first woman to teach at the Sorbonne. In 1935, her daughter also won a Nobel prize in Chemistry. An excellent resource, and a fascinating historical perspective on professional women's lives in general, is *Nobel Prize Women in Science*, by Sharon Bertsch McGrayne. Published as a second edition in 1998, it offers vignettes of the lives of 16 women scientists from Marie Curie to Christianne Nusslein-Volhard (1995 Nobel Prize winner in Physiology or Medicine).

Presentations during March included topics related to physics, astronomy, gender-equitable teaching practices, legal aspects of women's experiences in academe, leadership as experienced by a woman officer in the army, and a round-table discussion regarding perspectives of MTSU women in science. Movie presentations included *Madame Curie*, *Gorillas in the Mist*, and *Amelia Earhart, the Final Flight*. One of the featured events of the month was the first annual "Breakfast with Champions." Approximately 25 high school girls who are outstanding in mathematics or science were invited along with their math/science teacher and parents to a breakfast and tour of campus. Dr. Mary Martin, Interim Associate Dean of CBAS, spoke on "How to Get There." Each girl was presented with a certificate and an autographed copy of *Nobel Prize Women in Science*. Hopefully, we will see more of these students in the near future.

Marie Curie said, "Nothing in life is to be feared. It is only to be understood." Advice like this gives added value to the study of history. In March, National Women's History Month lends understanding to women's role in history. This year, it also advanced the premise that women have had and will continue to play a role in mathematics and science.



Tennessee Center for the Advancement of Mathematics, Science and Technology Education



On March 12th, the College of Basic and Applied Sciences celebrated the establishment of the NASA funded Center. President McPhee welcomed MTSU faculty and students and representatives from area business and industry, school systems, professional organizations, state Department of Education, THEC, and local civic groups to the University. Dr. McPhee voiced his total support for the Center concept and his commitment to providing space and resources necessary to make the Center a success.

Officials from NASA Headquarters in Washington and Marshall Space Flight Center in Huntsville participated in the program as well as supporters from the State Department of Education, Rutherford County and

Metro-Davidson School Systems, and State Farm Insurance Companies. Frank Owens, Director of NASA

Education Division, said, "The Center will be a rallying cry for the State of Tennessee, and

through our partnership with MTSU, we will make the Center a reality." "There is a real crisis in math and science education in this country, and finding ways to improve the situation is vital to the nation's future," added Art Stephenson, Director of Marshall Space Flight Center. U.S. Rep. Bart Gordon praised

MTSU for proposing a great idea and following through to secure funding. He thanked

NASA for funding the Center at MTSU where a large number of first-generation students are studying.

Professors E. Ray Phillips and Cindi

Smith-Walters are directors of the Center whose mission is to enhance the quality of mathematics, science

and technology education, at all levels, in Tennessee. The Center will be housed in the former Belle Aire Church building. Phillips indicated that plans are to be in the new space and in full operation by Fall 2002; however, many projects are already in progress, and we are looking for others to join our Partners for Success Program. For information on how all departments in the college can participate in the Center activities, contact Dr. Phillips at 904-8410 or email at ephillip@mtsu.edu.



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The Basic B.E.S.T. (Boastful Educators Showing Talents)

All departments are invited to submit items for this column

Aerospace

Gail Zlotky had an article published in the March/April issue of *Aviation for Women*. The title of her article was "A Teacher's Story," and the subject of her article was MTSU faculty colleague, **Janet McGee**.

Bill Allen has won the Federal Aviation Administration's District Safety Counselor of the Year Award which is given each year to the Safety Counselor who has made the greatest contribution to air safety and air safety programs.

The **Aerospace Department** has received a grant extension to continue work improving the safety of Jet Engine Emissions. The research is being conducted at the MTSU Airport Campus at the Murfreesboro Airport. The grant is part of the Small Business Innovation Research (SBIR) in conjunction with Optilogic, Inc. and Sverdrup who are contractors at the Arnold Engineering Development Center in Tullahoma.

Agribusiness/Agriscience

Harley Foutch attended the Mid-winter meeting of the American Association of State Colleges of Agriculture and Renewable Resources (AASCARR) in Washington, DC in March. As President of AASCARR, he gave the President's report, conducted the business meetings, served as Master of Ceremonies at the banquet, and gave a presentation entitled "AASCARR Wrap-Up."

Warren Anderson's Soil and Water Conservation class served as volunteers at the Stones River National Battlefield in February. They volunteered to improve the historic appearance of the land between the Hazen Brigade Monument and the greenway spur trail that proceeds toward General Bragg's Headquarters. The class made observations on soil erosion in the area and made recommendations on how to address the soil erosion problem.

Kevin Downs and Joey Mehlhorn coordinated the Practical Data Gathering competition for the Science Olympiad held at MTSU in February. The competition integrated agricultural science and data collection methods. **Warren Anderson** officiated at the Road Scholar (map reading) portion of the Science Olympiad.

Harley Foutch presented an overview of ABAS to the newly formed Horse Science Advisory Board at their meeting in March. **David Whitaker** made a presentation describing the complete Horse Science program. This meeting enhanced a more fully developed relationship/partnership

with the Horse Industry.

Biology

Cindi Smith-Walters has just completed both a Faculty Guide with a laboratory component and a Student Guide for the course, Introductory Earth Science. This course is used by institutions of higher learning that belong to the Consortium of Christian Colleges, an international group. Published by JPO Publishing, a Division of Oosting and Associates, Inc., the guides and course will be available at the end of March 2002.

Kim Sadler and Cindi Smith-Walters recently conducted a full day workshop with middle school teachers from Maury, Williamson, and Lewis Counties. This workshop focused on the new state mandated GATEWAY objectives and content and laboratory activities that align curriculum with these state science standards.

Cindi Smith-Walters and Karen Hargrove recently hosted the Middle Tennessee Regional Conference of the Tennessee Environmental Education Association at Radnor Lake Natural Area in Nashville. The Saturday program included sessions "Project Archeology, Geology of Tennessee," "Owls: Their Natural History," and "Identification of Winter Twigs and Trees." **Steve Howard** recently had a research paper accepted for publication in the *Journal of Evolutionary Biology*, entitled "The Maintenance of Genetic Recombination in Parasites: The Ratchet and the Red Queen."

Chemistry

Gary Wulfsberg received a request from Universal Pictures of Hollywood for permission to use his textbook, "Inorganic Chemistry," in the upcoming movie, "The Incredible Hulk." Permission is being granted. According to Universal Pictures, the movie is "about a young research scientist, Bruce Banner, who becomes the powerful, green-skinned 'Hulk' and is forced to defend himself against the military." The book will be part of the background for Banner's laboratory and/or house, and possibly for his classroom.

Computer Science

Brenda Parker presented a talk at Columbia State Community College in February to a group of middle school teachers who are participating in the Dwight D. Eisenhower Professional Development workshop. The topic of the workshop was "Using Webquests in the Middle School Science Classrooms." After the presentation, teachers participated in hands-on activities related to science webquests.

Jon Price, CSCI graduate student, had an article entitled, "A Basic Lesson on Income Tax," accepted for publication and will be in the April issue of *Visual Basic Developer*.

Engineering Technology/Industrial Studies

Saeed Foroudastan participated and organized an event (Bridge Design) for the Science Olympiad Regional competition at MTSU in February.

MTSU STUDENT WINS ENGINEERING COMPETITION

The Nashville Chapter of the American Society of Mechanical Engineers held its annual ASME Student Design Presentation Competition at MTSU.

Thursday March 21st marked an important milestone for Engineering Technology & Industrial Studies at MTSU when Curt Mitchner, senior Engineering Technology and Safety major, took the top prize at the ASME Student Design Competition. Mitchner is in good company because, in the past, prizes have gone to students of Vanderbilt, Tennessee Technological and Tennessee State. "This is a significant victory for MTSU," said **Dr. Saeed Foroudastan**, faculty advisor to the MTSU student chapter of ASME and former president of ASME's Nashville Chapter. Mitchner's success brings notoriety to MTSU that will be carried on to the Regional Student Conference. A win regionally will be followed by a trip to the national finals, further elevating MTSU's reputation.

MTSU was the underdog in this competition, which made the victory that much sweeter for the student. By winning the competition, Mitchner proves that MTSU Engineering Technology students can indeed compete with engineering students in the region. "Our students understand and are effective with technology, as Curt has proven," said **Foroudastan** as he reflects on the exciting results.

Dr. Foroudastan would like to thank the entire Engineering Technology Department and faculty for providing an exemplary education that helped Mitchner secure this prestigious victory.

Mathematical Sciences

Rebecca Zijlstra had an article entitled "Steiner Triple Systems with Automorphism Type $[1,0,0,0,0,0,t,0,\dots,0,1,0,\dots,0]$," accepted for publication in *Ars Combinatoria*

Cost Modeling for Ground & Flight Telescopes A Preliminary Report

Gayle Reese, a graduate student in Math and a GAANN Fellowship recipient, made a presentation at the Joint Southeastern Regional Meeting of the American Mathematical Society and the Mathematical Association of America held at Georgia Institute of Technology in March. Her presentation was given in a Session for General Contributed Papers. This preliminary report provided an overview of the architectural parameters of technologically advanced round-based and flight-based telescopes and the general format of a statistical model used to determine how these parameters affect telescope optical assembly cost.

Nursing

Suzanne Prevost presented the keynote address for the University of Arkansas Nursing Research Conference held in Little Rock in February. Her topic was "Findings to Front Lines: Research for Practice." She also presented the keynote address for the national Association of Clinical Nurse Specialists Conference in Atlanta, GA, and was keynote speaker for the Beta Theta Chapter at Large, Nursing Research Conference in Memphis in March. Her topics, respectively, were "CNS Outcomes: Vision, Voice, and Value," and Evidence-Based Practice."

Lynn Parsons presented the keynote address for the Kappa Theta Chapter at Western Kentucky University in Bowling Green. Her topic was "Empowerment Through Delegation: Bridging Research, Education and Practice."

Judy Campbell presented at the Spring Research Colloquia on the topic "Determination of Anthropometric Assessment and Life Satisfaction Outcomes for Older Adults Participating in a Planned Resistance Training Exercise Program Housed at a Community Senior Center." In March she also presented at Roane State Community College in Harri-man, TN, to graduating senior nursing students and nurse faculty, on the topic "Nursing Management Content on the NCLEX-RN Test Blueprint: Understanding Delegation, Prioritization of Care and Triage Concepts."

Stephen Krau presented in January at the ProHealth Medical Center in Franklin, TN, on the topic "Biohazard Information in Relation to HIV/AIDS and Hepatitis C."