



Welcome from the Department Head

Mississippi State's Civil and Environmental Engineering Department proactively uses teaching, research, and service to educate baccalaureate, masters, and doctoral students. We feel the first, best calling of our students is to become Professional Engineers by becoming competent, dynamic, and ethical engineers of the future. This Enewsletter is our effort to share a snippet of a few of the achievements we have made during this higher education journey.

MSU breaks ground on Richard A. Rula Engineering and Science Complex

Construction on the Richard A. Rula Engineering and Science Complex at Mississippi State University is officially underway after today's [Dec. 7] groundbreaking ceremony on the MSU campus.

The new project will provide state-of-the-art facilities for MSU's James Worth Bagley College of Engineering, continuing the university's historic strength in this field. The 70,000-square-foot facility will house the Department of Civil and Environmental Engineering and provide classrooms and offices; teaching, research and chemistry labs; and high bay areas.



During the ceremony, MSU President Mark E. Keenum thanked the many donors who have made substantial contributions toward the new building. The MSU Foundation has raised approximately \$14 million in private funds in support of the project, Keenum noted.

"We are reaping the benefits of the generosity of so many that are making this great university even greater," Keenum said. "That's what we're celebrating today. We're celebrating the groundbreaking, the construction of this beautiful facility, which is truly something for us to be very thankful for as a university."

The \$34 million building is named after MSU 2019 National Alumnus of the Year Richard A. Rula, an education advocate and leader in the construction industry. Rula is the owner of Hemphill Construction Company and also serves on the Bagley College of Engineering Advisory Board, MSU Foundation Board and the Bulldog Club Board. In addition to his service and leadership, he has made significant gifts to the university totaling more than \$9.8 million, including the lead gift of \$8 million for the Engineering and Science Complex.

"A project of this magnitude is the product of profound faith and unshakable resolve. To all of the many contributors, I say, 'thank you,'" Rula said. "Now we, our children, their children and generations after will all benefit from this beautiful facility that will provide a quality education for our students."

Jackson-based Eley Guild Hardy Architects is the design professional for the building, while Columbus-based West Brothers Construction is the general contractor. The dedicated research and teaching labs will support the department's technical strengths in the areas of construction, environmental, geotechnical, materials, structural, transportation and water resources engineering, along with space to support the chemistry instructional needs of the university.

"The collective vision for this project was to develop a building that looked like it has been part of our beautiful campus for decades, but when you went inside, you found the most modern academic engineering building in the State of Mississippi," said Bagley College of Engineering Dean Jason Keith. "I am pleased to tell you that we have achieved that vision."

The research area in the new structure will help faculty continue to stay on the leading edge of new technologies and support economic development in Mississippi, while training future leaders in key fields. MSU's Department of Civil and Environmental Engineering graduates professionals who help create and maintain the systems that raise the standard of living, such as clean water, safe roads, proper sanitation and quality buildings.

Article originally published on the Bagley College of Engineering website, at https://www.msstate.edu/newsroom/article/2018/12/msu -breaks-ground-richard-rula-engineering-and-science-complex/. Article by James Carskadon.





Dr. Dennis D. Truax, James T. White Endowed Chair, Department Head, and Professor of the Mississippi State University Civil and Environmental Engineering Department, has been named a 2020 President-Elect Official Nominee of the American Society of Civil Engineers.

Learn more at https://www.asce.org/templates/person-candidate-detail.aspx?id=29093.

Civil Engineering Students Always Eager to Lend a Hand

Last semester, a group of about thirty civil and environmental engineering students joined together to help restore the Mississippi River Basin Model in Clinton, MS. Students from the Mississippi State University chapters of the American Society of Civil Engineers and Engineers Without Borders were joined by students from the chapters of the University of Mississippi and Jackson State University. "At our MSU-EWB chapter, we realize that collaboration is key to growing our communities," Phong Ly, president of EWB said. "This is why we felt that partnering with the Ole Miss EWB [and ASCE] chapter for the River Basin cleanup could really make a

After a disastrous Mississippi flood in 1927, the Army Corps of Engineers needed a way to model flood controls measures such as locks and levees, but since the Mississippi River Basin is so large, it was difficult to examine how a control could affect the whole

difference to not only the civil engineering profession, but the Clinton community."



panels were constructed to model the shape of the land and the river bed, with metal mesh added to simulate foliage. The entire system could be flooded to test how the water would run through the system.

Although the Model was instrumental in preventing damages from floods, it eventually

became too expensive to maintain, and fell into disrepair. The metal mesh foliage washed up into giant piles, and tree branches and other debris littered the model. The students from ASCE and EWB spent an entire day cleaning the debris away from a section the

concrete model. Jacob Otts, a member of the MSU-ASCE chapter who attended the clean-up, said "I enjoyed that event very much! By being there not only were we cleaning up but our attendance also helped raise money for the people restoring 'The Model' [The Friends of the Mississippi River Basin] ... At the end of the day it was gratifying to look



Basin Model

Above: ASCE and EWB students clean up the River

Above: Students catch macroinvertebrates in Catalpa Creek

back on the work we had achieved."

Students from the civil and environmental engineering department also volunteered their service to help clean up and assess the health of Catalpa Creek. A significant portion of our

campus lies within the Catalpa Creek Watershed, and inevitably contributes to the pollution of the stream. Eager to ensure that Catalpa Creek is maintained and protected, the Soil and Water Conservation Society sponsors two events each year.

Every fall semester, the Soil and Water Conservation Society holds a training session on the health of Catalpa Creek. For four years, Deborah Veeder, the Adopt-a-Stream Coordinator at the Mississippi Wildlife Federation, has come to MSU campus to give a two hour classroom training session on watershed hydrology, and the effects of pollution and water quality on the macroinvertebrates that live in the water. After the class, attendees go to Catalpa Creek and collect water samples, which they test for various



Above: ASCE and EWB students who volunteered to clean up the Mississippi River Basin Model



Above: A cleaned section of the Mississippi River Basin Model, with a pile of mesh "foliage" on the left



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Civil Engineering Students Always Eager to Lend a Hand, cont.

water quality characteristics, such as pH, temperature, and dissolved oxygen. They also look for macroinvertebrates, which are things like snails and insects that live in the water. Since each species can only withstand a certain amount of water pollution, the presence or absence of different macroinvertebrate species can give an indication of the health of the water.

In addition to testing the quality of the water, students, also come together each year and spend a few hours cleaning up the segment of Catalpa Creek that runs through campus. The clean-up effort is led by the Soil and Water Conservation Society, with students joining from other organizations and departments, as well, including Theta Tau Professional Engineering Fraternity, which donated snacks and drinks to the student volunteers. On the last cleanup day in October, thirty 50-gallon bags were filled with waste removed from Catalpa Creek in an hour and a half and properly disposed or recycled. Another cleanup day is planned for this March to continue to protect the creek environment, in collaboration with the Society for Hispanic Professional Engineers and the ASCE chapters at Mississippi State University. This will be the first year that the clean -up event will be held in both the Fall and Spring semesters.



Above: Volunteers pose with the debris removed from Catalpa Creek after the Fall 2018 clean-up

Smith becomes first woman from Corps elected to the National Academy of Engineering



Dr. Jane McKee Smith, a senior research scientist with the Coastal and Hydraulics Laboratory at the U.S. Army Engineer Research and Development Center, has been elected to the National Academy of Engineering. Election to the Academy is one of the highest professional distinctions bestowed to an engineer.

This is an impressive career accomplishment, said Dr. David Pittman, Director of the ERDC. Only four other ERDC or Waterways Experiment Station professionals have served as distinguished members of the Academy.

Smith was recognized for her research breakthroughs in hydrodynamic phenomena and her leadership in coastal engineering research and development resulting in improved infrastructure resilience. Her research focuses on nearshore waves and currents, wave-current interaction, shallow-water wave processes and storm surge.

Dr. Jane McKee Smith is a graduate of Mississippi State University's CEE department.

"Jane also holds the distinction of being the first female Academy member from the U.S. Army Corps of Engineers," said Pittman.

department. Smith is the co-developer of the Steady-State Spectral Wave Model, a numerical model that is used throughout the world for coastal project planning and design. She was the wave modeling lead investigator for the Interagency Performance Evaluation Task Force evaluation of Hurricane Katrina and also led development of a system to quickly forecast hurricane waves, storm surge and inundation for the Hawaiian Islands.

She has more than 200 professional publications to her credit, and serves as chair of the American Society of Civil Engineers Coastal Engineering Research Council and on the editorial boards of "Coastal Engineering" and the "Journal of Waterway, Port, Coastal and Ocean Engineering." She is an adjunct professor at Mississippi State University and serves on the PhD Committees at MSU, the University of Florida, Louisiana State University and Texas A&M University.

"It is a great honor to be elected to the National Academy of Engineering," said Smith. "I'm very thankful for the opportunities that ERDC has given me to research waves and coastal processes, solve engineering challenges, collaborate with the international community, and most of all, work with both great mentors and colleagues. Engineering is all about solving problems, and it is very rewarding to focus on solving problems with national and international impact as part of the Corps of Engineers team."

The NAE is a private, independent, nonprofit institution that provides engineering leadership in service to the nation. It consists of more than 2,000 peer-elected members and foreign members, who are among the world's most accomplished engineers. They provide the leadership and expertise for numerous projects focused on the relationships between engineering, technology and the quality of life.

The ERDC helps solve the nation's most challenging problems in civil and military engineering, geospatial sciences, water resources, and environmental sciences. As one of the most diverse engineering and scientific research organizations in the world, ERDC conducts research and development in support of the Soldier, military installations, and the Corps of Engineers' civil works mission, as well as for other federal, state and municipal authorities. As part of the ERDC, CHL addresses an entire spectrum of water resource challenges in groundwater, watersheds, rivers, reservoirs, estuaries, harbors, coastal inlets and wetlands.

Article originally posted on https://www.erdc.usace.army.mil/Media/News-Stories/Article/1758441/. Article by Carol Coleman.





Phong Ly, a senior in the MSU Civil and Environmental Engineering Department, was named one of the 2019 New Faces of Civil Engineering, College Edition.

The American Society of Civil Engineers (ASCE) has announced the 10 2019 New Faces of Civil Engineering in the College category. ASCE's New Faces of Civil Engineering program highlights up-and -coming civil engineering leaders from around the country and celebrates their academic achievements, as well as their commitment to serving others. All New Face honorees will be recognized during ASCE's annual Outstanding Projects and Leaders (OPAL) Gala on March 14, 2019 in Arlington, VA.

"ASCE is thrilled to recognize each of the 2019 New Faces of Civil Engineering for their inspiring achievements," said Robin A. Kemper, P.E., ASCE President. "These are the next generation of civil engineers, role models and leaders. They show dedication to the profession in their education and extracurricular activities, and I am excited to see where they go next."

Read more on the ASCE website at https://www.asce.org/templates/press-release-detail.aspx? id=31318.

A number of faculty, students, and alumni from the Mississippi State University Civil and Environmental Engineering department attended the annual Transportation Research Board Meeting this year. Among them, Dr. Isaac Howard's team gave eight presentations, five of which were given by students, and Dr. Alireza Ermagun was cited on eight presentations and posters. Dr. Howard (farthest left in photograph) was also involved in committee meetings during the TRB meeting.





The following students were inducted into Chi Epsilon at the Fall 2018 induction ceremony: Eliza Ann Bigham, William Lamar Bullock, Jami Lynn Daugherty, Kiley Marie Dunagan, Peyton David Dungan, Chase Allen Gartrell, Michael Andrew Gatlin, Cody Barrett Germond, James Noel Grafe, Jacob Alexander Herring, Stewart Benjamin Inman, Christian Stone Jackson, Michala Lynn Jerome, Tyler James Kozaritz, Diana Ann Linder, Taylor Saree Noble-Cagle, Joshua Keith Rainey, Joachim May Schmidt, Cade Stewart Scroggins, Hunter Logan Simrall, Benjamin Roy Stroud, David Edward Warden, Daniel Cornell Wells, and Leigh Elizabeth Whitehouse-Ayers.

Dr. Farshid Vahedifard continues to be recognized for his work on soil-based systems. Read his most recent article at https://theconversation.com/the-risk-of-cascading-natural-disasters-is-on-the-rise-104192.

Bagley student wins award at regional conference

Bagley College of Engineering graduate student Tim Murphy was recently honored with the Barry Dempsey Bituminous Technical Contribution of the Year award at the Illinois Bituminous Paving Conference.

Murphy is a distance education student studying construction materials through Bagley's civil & environmental engineering department.

"We are very proud of Tim's accomplishments," said Isaac Howard, professor of civil & environmental engineering and director of the Construction Materials Research Center at Mississippi State. "Tim is a great example of the strong group of students who are working within the CMRC.

The Barry Dempsey Bituminous Technical Contribution of the Year Award recognizes a Department of Transportation or industry employee for outstanding technical or engineering contribution to the bituminous paving field.

The conference is held each year to enable professionals to share the latest technical information and review actual field reports in the area of hot-mix asphalt construction. Compressed into a one-day program, the conference provides an opportunity for highway engineers to meet with contractors, government officials, consultants and fellow engineers.

Article originally published on the Bagley College of Engineering Website at https://www.bagley.msstate.edu/news/bagley-studentwins-award-at-regional-conference/. Article by Julia Gibson.





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Transportation Game Night



The Department of Civil and Environment Engineering hosted a Transportation Game Night On Wednesday, January 30. Undergraduate students of the Transportation Engineering taught by Dr. Alireza Ermagun participated in this event and played board games such as *Empire Express, Steam, Urbanization, Ticket to Ride, China Rails*, and *New England Railways* in groups of five to eight students. Dr. Ermagun has incorporated Transportation Game Night into the Transportation Engineering Syllabus for practical and pedagogical reasons. He believes board games are powerful teaching tools for undergraduate students due to their transparency, simplicity, and constrained game play. After playing *Empire Express*, Bridget Abadie noted "it was an easy and fun way to learn about the economic benefits of railways and how to efficiently use routes based on cost and destination." Chandler Causey, who played *China Rails*, said, "The game showed how supply and demand work through the prices of more valuable resources that were located in the most difficult areas of the map to reach." Kaelin Thomas also said, "Game night was a learning process, and it was also fun at the same time." Dr. Ermagun is hoping to host more Transportation Game Nights not only for pedagogical purposes, but also to give our students a chance to get to know one another better through a cutthroat competition where winner takes all or a

relaxed game night with friends.

Recognizing Our Student Athletes

The CEE department currently has three student athletes. Two participate in track and field, and one student is on the softball team. Below is an interview with Macey Wallace, a member of MSU's 2019 Track and Field team.

What's your specialty or position?

Pentathlon/Heptathlon (this includes high jump, long jump, hurdles, javelin, shot put, 800 meters, and 200 meters)

Why did you choose to major in civil and environmental engineering?

I love challenges, so I knew I wanted to be an engineer. Every year I go on a mission trip to repair houses, and I realized that design and construction, whether natural or man-made, was very interesting.

What are your career goals?

I would like to go into structural or environmental engineering. I hope to be able to do the same kinds of things as I do on the mission trips but on a much larger scale, like creating access to safe drinking water or transportation in areas that do not have them.

What do you like best about being an MSU student athlete?

I have enjoy meeting many new people in my sport, and I have greatly appreciated the support that the staff shows student athletes. I also enjoy the challenges that come with that role.

What extra challenges do you face as a student athlete?

It is very difficult to balance my athletic and academic responsibilities. As a student athlete, I have to deal with fatigue and injuries from training, which lasts about 3-4 hours a day, 6 days a week. I also have extra study requirements and team meetings I have to attend, which leaves almost no time for anything else that I would like to do. I have to manage all this while still doing my best in classes.

Macey Wallace is a freshman at Mississippi State University, and is majoring in Civil Engineering with an Environmental Engineering concentration.



