

Since 1839 Who We Are, What We Do

**GROUNDING IN TEACHING, RESEARCH AND SERVICE, MU STANDS AT
THE PEAK OF THE NATIONAL HIGHER EDUCATION LANDSCAPE.**

THE LANDSCAPE OF HIGHER LEARNING in America is vast and varied.

A topography of small, large, public, private, professional, technical, theological, military, liberal arts and research institutions awaits every student seeking a college degree, every professor in search of a faculty position and every grant agency awaiting a deserving beneficiary. Distinct missions add color and texture to the terrain. Levels of access give it depth. Each institution — from community colleges to the highly selective Ivy League — plays a role in educating the public. Where does MU fit into this picture? It's a land-grant institution, a member of the Association of American Universities (AAU), a public research university and a school classified as Doctoral/Research University-Extensive by the Carnegie Foundation for the Advancement of Teaching. These



indicators identify Mizzou as one of the summits in the landscape of higher learning, but what do they actually mean? To answer that question, here's a view from the top.

BUILT TO SERVE: THE LAND-GRANT TRADITION

Today's students would barely recognize the university of the early 19th century. Following the English model of education, isolated institutions staffed with clergy members taught philosophy, religion, law, medicine and literature to well-heeled young men who learned through memorization and recitation. At that time, the University of Missouri, established in 1839, consisted only of what would later become the College of Arts and Science.

By the Civil War, an expanding population and rapidly developing agriculture and industry inspired a change. In 1862, President Abraham Lincoln signed the Morrill Act, providing for the donation of public land to the

individual states. Funds from the sale of these "land grants" were to be used to create institutions to teach agriculture and the mechanic arts to the American masses.

"A major goal of the Morrill Act was to enhance the curriculum to help farmers with their crops," says Vicki Rosser, assistant professor of educational leadership and policy analysis. "It established a social commitment to our surrounding communities."

Some states that already had universities built new schools to carry out the land-grant mission, such as Kansas State and Michigan State universities. Missourians chose instead to apply the funds to the existing state university by establishing the College of Agriculture on the Columbia campus and a new School of Mines and Metallurgy in Rolla. At MU, this decision effectively created two universities in one: a land-grant institution for all citizens of the state and an intellectual center to advance liberal arts scholarship. The

1636
The first institution of higher education in the British North American colonies, Harvard College, is established at Cambridge, Mass. Throughout the 1600s and 1700s, universities follow the English model's emphasis on general education in the classics, the humanities, religious instruction and morality.

1752
Experimenting with a key tied to a kite, Benjamin Franklin discovers that lightning is a form of electricity.

1839
The Geyer Act establishes the University of Missouri in Columbia. It is the first publicly supported higher education institution west of the Mississippi River.

1862
President Abraham Lincoln signs the Morrill Act, which creates the nation's land-grant universities.



©PunchStock
KITE, PHOTOCASE

1870
The University of Missouri is given land-grant status under the Morrill Act and founds the College of Agriculture in Columbia and a School of Mines and Metallurgy in Rolla.

1879
Thomas Edison invents the carbon filament light bulb.



PHOTO BY RICH HILL

Late 1800s
American universities begin to follow the German model's focus on scientific research and advanced study.

1873
MU lecturer and Missouri State Entomologist Charles V. Riley helps save the French wine industry from a vine-ravaging aphid by grafting resistant Missouri rootstock onto French vines.



PHOTO BY STEVE MORSE

University of California, Berkeley, 1900
University of Michigan, 1900
The University of Wisconsin-Madison, 1900
University of Virginia, 1904
University of Illinois at Urbana-Champaign, 1908
University of Minnesota, Twin Cities, 1908
University of Missouri-Columbia, 1908
Indiana University, 1909
The University of Iowa, 1909
The University of Kansas, 1909
University of Nebraska-Lincoln, 1909
The Ohio State University, 1916
The University of North Carolina at Chapel Hill, 1922
The University of Texas at Austin, 1929
University of Washington, 1950
Iowa State University, 1958
The Pennsylvania State University, 1958
Purdue University, 1958
Michigan State University, 1964
University of Colorado at Boulder, 1966
University of Maryland, College Park, 1969
University of Oregon, 1969
University of California, Los Angeles, 1974
University of Pittsburgh, 1974
University of California, San Diego, 1982
The University of Arizona, 1985
University of Florida, 1985
Rutgers, The State University of New Jersey, 1989
The State University of New York at Buffalo, 1989
University of California, Santa Barbara, 1995
University of California, Davis, 1996
University of California, Irvine, 1996
The State University of New York at Stony Brook, 2001
Texas A&M University, 2001

Why It Matters

STORY BY SONA PAI

land-grant ideal is still central to MU's mission, which emphasizes teaching, research and service to the entire state.

"We are an elite institution, but we are not a school only for the elite," says Ann Korschgen, vice provost for enrollment management. "Providing access is a key part of our mission, and we do that in many different ways, including targeted scholarships and recruitment."

After the Morrill Act, subsequent legislation in the early 20th century provided more support for land-grant universities and mandated that they share their knowledge with the public — the underpinnings of University of Missouri Extension, headquartered at MU.

Today, through a statewide network of offices, an array of publications and Web-based services, extension faculty still help farmers, but they also teach families about nutrition, educate youth through 4-H programs, guide entrepreneurs as they start new businesses and help the state's growing Hispanic population

through community programs.

"We respond as the needs of the state change, and we respond with education," says Tom Henderson, interim vice provost and director of extension.

IN GOOD COMPANY: AAU MEMBERSHIP

In the late 19th century, the modern university as we know it today was born. Higher education in America had begun to follow the German model, which emphasized basic research and advanced study. At Mizzou, the scope of academic programs continued to broaden with new, specialized schools and colleges, including the Graduate Interdisciplinary School. Because there was no regulating body or system of accreditation in place at the time, standards of graduate education varied drastically. To solve this problem, leaders of some of the nation's best universities established the AAU in 1900.

Member institutions combined a commitment to first-rate undergraduate

education with the goals of pioneering research and outstanding graduate programs to create a uniquely American

1890
Congress passes a second Morrill Act, which creates what are now known as historically black universities and provides more support to land-grant institutions.

1900
Fourteen universities, including Cornell, Stanford and Yale, create the Association of American Universities (AAU) to provide standards for doctoral programs. They establish modern

American higher education's emphasis on undergraduate education and research.

1903
The Wright brothers make the world's first successful airplane flight.

1910
University of Missouri Extension begins spreading the benefits of University research to the citizens of Missouri.

1911
Psychology faculty member Max Meyer publishes the first psychology text to make an empirical link between psychology and physiology.

1914
Walter Williams, dean of MU's School of Journalism, writes *The Journalist's Creed*, a standard for practicing journalism that stands the test of time.

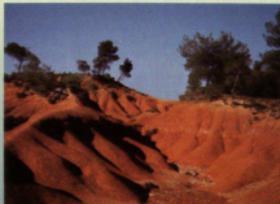


PHOTO BY MARTIAL COLONIA/GETTY IMAGES

1917
MU scientists are the first to conduct soil-erosion research. Their work prompts Congress to create

experiment stations nationwide to develop techniques of restoring eroded land and dealing with droughts.



PHOTO COURTESY OF LIBRARY OF CONGRESS

model of higher education. MU joined the organization in 1908 and is the only public AAU member in the state. The only other member school in Missouri is Washington University, a private school in St. Louis.

Today, the AAU includes 62 members, 34 of which are public universities. Membership is by invitation only and can be revoked if the organization's monitoring committee finds that a member institution has fallen behind in generating federal research funding or attracting nationally recognized faculty members. In recent years, MU has led all AAU public universities in federal grant growth.

Lori Franz, interim provost, says AAU status attracts accomplished faculty and adds value to an MU degree. "There is a bond among those universities," she says. "When one of our undergraduates applies to graduate school at another university, that school knows the student had rigorous courses with the best professors. They know what our transcript means."

A NATIONAL RESOURCE: THE PUBLIC RESEARCH UNIVERSITY

As scientific and technological discoveries began to transform life in the 20th

century, the federal government began to recognize the potential of the nation's universities for innovation. Far from the isolated ivory towers of pre-Civil War days, American research universities such as Mizzou became the primary research and development centers for the federal government, which created agencies including the National Science Foundation (NSF) and the National Institutes of Health (NIH) to fund research.

In 2003, research funding at MU increased by 17 percent to \$166 million, making it one of the fastest-growing research programs in the country. James Coleman, vice provost for research, attributes MU's leap forward in funding to strategic investments in specific programs. By focusing on existing strengths, MU has been able to attract nationally and internationally known faculty who have then catapulted their programs to the next level.

Coleman points to the Food for the 21st Century program as an example. By directing funds to

enhance Mizzou's reputation for leading research in plant biology and animal sciences, the University was able to recruit professors such as Douglas Randall, a biochemistry researcher who was appointed by President George W. Bush to serve on the National Science Board, NSF's governing body; Randall Prather, whose groundbreaking genetic research helped attract \$10 million in NIH grants for a National Swine Research Center on the MU campus; and Michael Roberts, a member of the prestigious National Academy of Sciences and the new director of MU's Life Sciences Center, which will be dedicated Sept. 17.

"By creating pockets of excellence, we set the bar higher for everyone across campus," Coleman says.

Federal funding gives graduate and undergraduate students the opportunity to think outside of the textbook by engaging in professional experiences and conducting hands-on research. It also makes the University a strong economic engine for the state. From 2000 to 2003, MU researchers

1927
MU geneticist Lewis J. Stadler discovers that radiation multiplies mutations in plants, a breakthrough that leads to faster development of new varieties of plants.



PHOTO BY STEVE MORAN

1945
With the end of World War II, the U.S. federal government realizes the need for scientific and technological research at its best universities. At MU, William Albrecht collects a soil sample from Sanborn Field that provides the golden mold used to make the penicillin-like drug Aureomycin.

1950
Congress creates the National Science Foundation, which awards federal funds to researchers at the nation's top institutions.

1952
Jonas Salk successfully inoculates volunteers with the polio vaccine.

1953
Francis Crick and James Watson create the first visual model of DNA.



PHOTO: CORBIS

1950s
Research by MU geneticist Ernie Sears, a member of the National Academy of Sciences, and his wife, geneticist Lotti Sears, helps create a strain of wheat that is resistant to rust disease and is later used as a food source worldwide.

1957
The Soviet Union initiates the Space Age with the successful launch of Sputnik I, the world's first artificial satellite.



PHOTO BY THOMAS SCHNEIDER/GETTY IMAGES
WHEAT PHOTO BY BILLY PRINZ/GETTY IMAGES

1963
The University of Missouri, which already included campuses in Columbia and Rolla, becomes a four-campus system by acquiring the University of Kansas City and creating another campus in St. Louis. The Columbia campus remains the largest and most comprehensive in the system.

OUR DEFINING QUALITIES

Land-grant university

Extension officers in every county of Missouri continue Mizzou's historic, federally mandated mission to carry the benefits of University research beyond campus walls. Targeted scholarships and recruitment efforts ensure access to higher education to Missouri's minority and lower-income families.

AAU member

For nearly 100 years, MU has been the only public university in the state to belong to the prestigious Association of American Universities. Membership recognizes excellence in teaching and research endeavors and includes only the nation's top-tier institutions.

Public research university

Mizzou serves as part of the research and development enterprise for the entire nation. Federal funds pay for groundbreaking research, and the benefits of that research extend across the nation and around the world.

Carnegie Doctoral/Research University-Extensive

Mizzou is classified among the American universities that offer the most educational opportunities and the highest level of instruction. These schools prepare the nation's future professionals and attract faculty who not only teach in the classroom but also advance scholarship through research and innovation.

brought in \$59.7 million in NSF research funds — more than any other institution in Missouri. As those funds make their way into Missouri's economy, Coleman says the research translates to \$100 million for the state and nearly 4,000 jobs.

A SPOT AT THE TOP: THE CARNEGIE CLASSIFICATION

In 1973, the Carnegie Foundation for the Advancement of Teaching, a leading center for research and policy studies, published its first *Carnegie Classification of Institutions of Higher Education*, a resource that groups like institutions into useful categories for research purposes. With this framework, researchers can compare individual schools with others that have similar characteristics.

The Carnegie classification is not a ranking system, but like membership in the AAU, it does characterize individual institutions by the company they keep. MU is classified as a Doctoral/Research University-Extensive, which means it offers a wide range of undergraduate programs and demonstrates a commitment to graduate education at the highest level, granting at least 50 doctoral degrees per

year in at least 15 disciplines. Schools in this category include Harvard, Princeton, the University of Iowa, the University of Michigan and Northwestern University.

U.S. News & World Report uses the Carnegie classification to organize its annual college rankings, and some grant agencies, both governmental and philanthropic, use the classification to guide funding decisions. But for a university, the most important role of the classification is in recruiting and retaining new faculty.

"It means that we have an environment in which faculty can spend a great deal of their time creating new knowledge and still fulfill a desire to teach in the classroom," Coleman says.

Rosser says the classification is also important to prospective graduate students who choose master's and doctoral programs for the promise of research experience and the scholarly reputation that comes along with the Doctoral/Research University-Extensive label.

"Designations like this indicate that we have a critical mass of excellence here," Coleman says. "They paint a picture of the kind of university we are." ❁



1970
MU scientist John C. Schuder develops the first automatic and completely implanted defibrillator for the human heart.

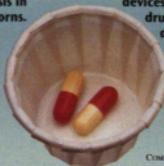
1973
The Carnegie Foundation for the Advancement of Teaching publishes its first classification of American colleges and universities, grouping schools together by the number and scope of their degree programs. MU is grouped among the nation's best universities that confer the most doctoral degrees and participate in the most federally funded research.

1966
MU completes construction on its world-class Research Reactor Center, which focuses on nuclear medicine research, including medical diagnostic tools and radiopharmaceuticals.



1982
MU pediatric cardiologist Zuhdi Lababidi performs the world's first pediatric angioplasty, which corrects aortic valve stenosis in newborns.

1999
MU chemists Jerry Atwood, Leonard Barbour and William Orr publish research that paves the way for better electronic devices and "smart" drugs, which deliver treatment to cells that need it.



2002
MU's Randall Prather, along with Immerge BioTherapeutics, clones the first miniature swine with a specific gene that causes human rejection "knocked out" of their DNA. The feat takes scientists a step closer to the possibility of pig-to-human organ transplantation.

2003
A team of MU researchers led by Professor Wynn Volkert wins a \$10 million grant from the National Cancer Institute to create a cancer imaging center to foster new methods of cancer detection and treatment.

2004
MU's Life Sciences Center opens. With funding from federal, state and private sources, the new center facilitates collaboration among faculty across disciplines to improve food, health and the environment.



PHOTO BY BILLY PERIN/GETTY IMAGES