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THIS ISSUE OF *RESEARCH* REPRESENTS THE THIRD IN A THREE-PART INSTALLMENT DEVOTED TO THE CONTRIBUTION THAT BAYLOR FACULTY AND STUDENTS MAKE TO THE ECONOMIC STRENGTH OF WACO AND THE SURROUNDING REGION.

This contribution appears in a variety of ways. As discussed in previous issues, Baylor provides research and development as well as employees to businesses around the world, the state of Texas, and Waco proper.

However, just as important for economic development is the manner in which Baylor enhances the quality of life of Waco's families and children.

Baylor brings outstanding musicians to town as part of the music school's Distinguished Artist Series, world-class art exhibitions to the Martin Museum of Art and wonderful theater productions to Baylor Theatre. At the same time, Baylor students intern in local school systems while Baylor faculty direct an \$11.4 million research grant that directly benefits Waco-area students.

In short, Baylor 2012 continues to open new doors and provide win-win collaborative opportunities for Baylor faculty and students.

As always, *Research* can relay but a few of Baylor's success stories. I invite you to contact me to learn more or visit our website at [www.baylor.edu/research](http://www.baylor.edu/research) for additional details.

**DR. TRUELL HYDE**  
Vice Provost for Research

MEMORY OF GEORGE BROWN AND ANNE L. BROWN BY THEIR CHILDREN



# economic development round table

How does Baylor as a research institution serve as an engine of economic development and enhance the economic vitality of Waco and central Texas?

**Hyde:** Research universities have long been recognized as drivers for local and regional economic development. Although university research and development play primary roles, often overlooked are the other things a research university brings to the table - such as the role the arts and humanities play through enhancement of the region's overall quality of life. When the local chamber of commerce is recruiting a new business, it is true that two of the first things a CEO wants to know are where their companies can become involved with research and development, and where they can hire a workforce. Immediately afterwards, they ask about where their children will go to school, take piano, or become involved in a summer enrichment camp, or where they and their family can attend the theater or visit a museum or art exhibit. All of these are direct outgrowths of the scholarship produced on a daily basis within the arts and humanities departments at universities like Baylor.

DR. TRUELL HYDE  
Vice Provost for Research

**DuPuy:** An educated workforce is an essential component of any community's economic vitality. The country's future depends on the quality and relevance of the education provided to our emerging workforce. The influence of Baylor on the education of the Waco community is both subtle and powerful. The presence of a full range of university offerings, academic and cultural, on- and off-campus, enriches the community's educational development in ways too intermingled to measure.

Baylor is also uniquely positioned to provide special research for industry and, where feasible, to bring industry into the classroom. Baylor offers unique opportunities for incoming industries and provides support for area business growth. With specific industry projects, student internships often lead to full-time employment after graduation. Baylor has long engaged area business leaders in giving feedback to students' entrepreneurial business proposals. Additionally, in other educational settings graduate students have provided guidance to area businesses, some of which blossomed into successful expanded business ventures. Baylor also offers financial business analysis and is positioned to assist faculty in taking their research to market. The relationships that Baylor enjoys within the community continue to nurture and enhance economic development. Baylor's engagement in the Waco economic development scene bodes well for both the community and Baylor.



Waco Mayor  
VIRGINIA DUPUY



What are some of the special economic development opportunities we have in Waco and central Texas?

**Hyde:** The Waco region is blessed with a number of economic development strengths: a stable and varied economic base, a low cost of living compared to other high-density urban areas within Texas, a geographic placement adjacent to both interstate and rail service, and a location conveniently accessible by two of the largest economic urban bases in Texas - Dallas and Austin. This is where the Baylor Advanced Research Institute, the BARI, fits in. Representing Baylor's schools and colleges and its more than 25 research institutes and centers, the BARI works closely with regional economic development organizations, providing prospective new businesses the potential for high technology research collaboration.

**Vaughan:** Waco's economic diversity provides a strong foundation. As we look to the future, Waco has the opportunity to leverage our unique location at the center of the state's consumer, education and commercial markets that are poised to grow at double-digit rates. There are more than 375,000 students enrolled in four-year colleges and close to 182,000 students enrolled in two-year colleges within a 200-mile radius of Waco. This is a great opportunity to attract talent and high-value jobs to our community. Waco's focus on sustainable development is also opening new opportunities, both doing more with the resources we have and positioning Waco to capture new "green" jobs and investment in this emerging economy.

How do the partnerships Baylor has built with other universities help leverage Baylor's contributions to economic development?

**Hyde:** Baylor's current global partners include the University of Stuttgart, the University of Shanghai for Science and Technology, and American University. Developing partnerships include Thunderbird University in Arizona, and Lingnan College in Guangzhou, China. In addition, the i5 summer program is underway. Increased collaboration between entrepreneurship and engineering and computer science on both Baylor's campus and in China, a widening circle of corporate sponsors who are receiving technology commercialization opportunity assessments from Baylor student-led teams, and a rapidly increasing level of grant funding from industry and foundation sponsors such as the National Collegiate Inventors and Innovators Alliance and the Kern Family Foundation are all ways these partnerships are bearing fruit.

*[Editor's note: The i5 stands for "Immersion Into International Interdisciplinary Innovation" and is a summer study abroad opportunity not only for technology students interested in further developing their business acumen, but also for business students interested in the world of technology entrepreneurship.]*



Greater Waco Chamber  
of Commerce President and CEO  
JIM VAUGHAN



## How do the partnerships Baylor has built with other Waco and central Texas organizations help leverage the university's contributions to economic development?

**Hyde:** Such partnerships leverage one another in a number of ways. The oldest of these is the long-standing partnership Baylor has with Texas State Technical College Waco. This partnership allows Baylor and TSTC Waco faculty, staff and students the opportunity to interact and work together. Since its inception in July 2007, the BARI has both focused and expanded this partnership. Through the BARI, Baylor now has, or is forming, close working relationships with multiple regional economic development organizations such as the Waco Industrial Foundation, the Waco-McLennan County Economic Development Corporation, the Heart of Texas Council of Governments, the Greater Waco Chamber of Commerce, and the Bellmead Economic Development Board. All of these relationships offer a unique economic development focus. The common thread is that all of them receive regular queries from business concerns expressing a desire to relocate to the Waco area. The BARI now participates in the majority of the written "request for proposal" responses to these business concerns, providing key answers to questions about the availability of potential high technology research collaboration and support to industry. When these businesses take their search to the next level and visit the Waco area, Baylor University is well represented, helping to leverage the Chamber's efforts.

**Vaughan:** Partnerships with Baylor and our colleges supply the skilled workforce and training that is critical to our existing and new employers. Equally important are Baylor's faculty and students who bring vitality to our downtown and region. Through the BARI, our partnership in economic development continues to grow at an exponential rate. By connecting research at Baylor to local companies and entrepreneurs, greater Waco has a new and powerful economic development tool that will drive innovation and create wealth in our region.

## Baylor's partnership with Waco Independent School District is an obvious win-win for educational enrichment, but how does that close working relationship also help drive economic development?

**Hyde:** The Waco Independent School District is absolutely essential to the overall economic development and thus the long-term health of the region for a variety of reasons. The most obvious of these is that the Waco ISD is one of the largest suppliers locally of the region's workforce. The second is that companies thinking of relocating to the area are vitally interested in the quality of education their children will receive. Current partnerships with Waco ISD through Baylor's College of Arts and Sciences and Schools of Engineering and Computer Science, Business, Law, and Education provide Waco ISD with educational enrichment, while at the same time providing Baylor students the opportunity to conduct research in real-world educational environments.

**Hernandez:** The future of Waco is dependent upon a workforce that is capable of meeting industries' need for scientifically and technologically literate employees. The responsibility for producing these kinds of employees within our community falls directly on Waco ISD. We look to Baylor University as a resource center in terms of teacher training, curriculum development and content specialization. Through our partnership with Baylor, Waco ISD students, parents, and teachers have participated in a multitude of Baylor initiatives. These partnerships help us provide excellent educational opportunities for all our children.

**DuPuy:** The Baylor School of Education works with area public school superintendents to place engaged student teachers throughout the Waco area. This process transforms these students into experienced teachers with well over a year in actual and applied classroom teaching experience. As a result, not only are seasoned, young teachers graduating fully prepared for the classroom, but the area school systems are benefiting from the young teachers' inspiration. While area independent school districts have challenging curriculum for advanced educational offerings, several quality private schools are also providing advanced curriculum subjects. This fall, the Greater Waco Education Initiative is engaging a broad cross section of community sectors to "send all children, of all ages, to school ready to learn" as every citizen shares the responsibility to educate every citizen. Baylor faculty members are providing key research for the development of this initiative.



Waco ISD Superintendent

DR. ROLAND HERNANDEZ

## We don't necessarily think first of economic development when we talk about the cultural enrichment that a comprehensive university provides, but what role do Baylor arts and humanities programs play in the life of an economically vibrant community?

**Hyde:** In my mind, this may be the most overlooked piece of the puzzle. Almost everyone understands how the school of business, the school of engineering or the sciences impact economic development. Unfortunately, some also believe a school of music, honors college, department of art or theater arts have little or nothing to do with economic development. This couldn't be further from the truth. Business drives economic development and businesses run on outstanding employees. These employees locate where their children can get a good education, learn a musical instrument, and be exposed to the humanities in a vibrant and dynamic fashion. Families look for communities offering a lifestyle that includes live theater, music and art. A thriving research university with a strong liberal arts program is a great draw for families like these.

**Hernandez:** There is a large body of research that links music instruction to increased intelligence. As an educator, I value the role that Baylor plays in providing enrichment opportunities for our students. I also believe that when students are engaged in extracurricular activities such as music, drama, sports, or other types of art programs at Baylor, they are exposed to the concept of college and assume that attending college is simply something that you do when you finish high school. Our goal is to prepare students and bridge the way for them to attend and graduate from college.

**Vaughan:** Economic development and great universities are about attracting talented and creative people. The university's programs in arts and humanities make our community richer and enable us—Baylor and Waco—to attract the best and brightest.

**DuPuy:** Baylor University student programs and events, homecoming, regular major athletic events, theater productions, opera, and a rich array of music productions, add significantly to the tapestry of Waco's quality of life. Only a bright, energetic university student body can deliver such venues. Waco is both benefactor and supporter of the Baylor cultural arts scene.

Likewise, Baylor faculty and administration both provide leadership and support to the educational and arts arenas throughout the community. That can only happen when a city collaborates with its university. Interdependent ventures include the Waco Symphony, the Central Texas String Academy, the Hippodrome Theatre's traveling live performances, Downtown Outdoor Public Art, the annual Cultural Arts Fest, Waco Jazz Orchestra and more. Baylor and Waco are a solid partnership.

Baylor's campus, with its handsome educational facilities and campus landscape, adds significant architectural quality to the Waco community's value proposition. Just as Baylor is working to develop its property assets to support its future growth needs, Waco is also working with Baylor to enhance the connectors between the campus and downtown, to strategically engage Baylor with the city, rich in history, art, music, theater, literature, retail, and multi-cultural offerings that support a vibrant quality of life and strong economy.





# workforce development

"Baylor offers unique opportunities for incoming industries and provides support for area business growth. With specific industry projects, student internships often lead to full-time employment after graduation."

— Virginia DuPuy, Waco Mayor

## Baylor Advanced Research Institute

Imagine how local businesses and emerging industries could grow and prosper if they could only tap into Baylor's wealth of research or take advantage of technical and training assistance from our partner institutions — in a one-stop venue.

With the creation of the BARI, the Baylor Advanced Research Institute, approved by Baylor Regents in July 2007, that concept is on its way to becoming a reality. The dynamic institute creates opportunities for Baylor students and faculty from multiple disciplines, other educational institutions, industry, business and government groups. In this environment, advanced research not only involves basic research, but also fosters long-term relationships and provides technical assistance, training and workforce development. In addition, the BARI encourages new growth in Waco.



**JIM KEPHART**

Director of program development for the Baylor Advanced Research Institute

The BARI "represents more than 25 research institutes and centers on the Baylor campus, and works closely with regional economic development organizations, providing prospective new businesses with the potential for high technology research collaboration," says Jim Kephart, director of program development for the institute. Of course, the fact that Baylor has long been at the forefront of research and has partnered with industry and other institutions is nothing new. What is new is the BARI's unique approach to identifying a client's specific needs, drawing from appropriate resources and then bringing them into play at the correct time in the development process.

"Part of the strength of the BARI concept is that it is fluid and mobile, a virtual institute at this point," says Kephart. "Looking across the spectrum of research from basic to applied efforts," he says, "the technical transfer of an intellectual property into a commercialized product involves a creative process." Once solely the domain of emerging technologies and business incubation, technology transfer is now also a necessary by-product of university research.

This is the point where the BARI can make an impact by providing research and development through assisting clients in moving products and/or technologies from idea to practical application. As part of the process toward establishing a working relationship, the BARI team first evaluates both the partner's on-going projects that may be ready to move toward commercial application and then matches these projects with the BARI's ability to provide a basic or applied research collaboration. This collaboration may be conducted in Baylor laboratories, at the partner's facilities or at another location, depending on which site is most cost effective and yields the best opportunity for successful research.

The BARI's effectiveness was further enhanced in November 2007 when Texas State Technical College Waco, the local campus of the state's technical education leader, penned as a primary partner. Through a memorandum of understanding, the two institutions agreed to work together in training, physical space and technical assistance, along with workforce development support. "The agreement draws on each partner's greatest strengths," says Carliss Hyde, TSTC Waco's director of external resource development, "and allows each institution to simply issue a statement of work and move quickly whenever an opportunity arises for a particular area of expertise."

The BARI's dynamic and holistic approach allows it to address a range of cutting-edge, multidisciplinary challenges. For instance, Kephart says the BARI is currently working with an emerging technology business that holds patent rights to a novel methane gas alternative energy process. Before taking it into the marketplace, the company needs final engineering, chemical prototyping and other research to prove the product's viability. The company also plans to draw on Baylor's business strengths with students completing a business and operations plan before referral to the BARI for final research collaboration. Should the company later require production assistance or workforce training, it can call on TSTC Waco, which specializes in those areas.

During its short existence, the BARI has already partnered with a variety of regional businesses, government agencies and educational institutions. With no defined boundaries, interdisciplinary research groups can be created as the need arises, focusing on any combination of academic disciplines.

"It's an exciting concept," Kephart says, "that offers Baylor students and faculty a wide range of cutting-edge research possibilities and helps shorten the time it takes to move new and innovative ideas from the lab into practical applications that can make a real and lasting difference in the region's economy."

**DR. JOSEPH WHITE**

Baylor associate professor of biology

**A BIRD'S - EYE VIEW**

In his years of researching water quality across the country, Dr. Joseph White has long wished for a bird's-eye view that could augment or replace the teams of field workers who spend days, weeks or even months, collecting samples from Texas ponds and streams. By mid-2009, the Baylor associate professor of biology will probably have his wish, when a new window into space opens in the skies above Waco.

The bird is a low-orbiting Bi-spectral Infrared Detection satellite, designed and built by students in the University of Stuttgart's Institute of Space Systems in Germany and launched in 2001. Until now, Stuttgart had no ground stations in this part of the world, leaving the German researchers unable to communicate with their satellite as it crossed over the continental United States.

Now work is progressing on a Waco-based ground station where Baylor students and faculty can track the satellite and download data as it passes through local airspace for approximately 20 minutes, five times a day.

The ground station is the result of an agreement between Baylor University and the University of Stuttgart under a memorandum of understanding signed in November 2007 creating a structure for academic exchange and cooperation in teaching and research between the two institutions.







The agreement offers tremendous opportunities for both universities, says Jim Kephart, the BARI's director of program development. Baylor gains immediate entry into aerospace for the small cost of the antenna downlink site while Stuttgart gains a no-cost downlink and access to their satellite in a previously communications-silent area of the planet.

Dick Campbell, a lecturer in Baylor's mechanical engineering department and a member of Baylor's Center for Astrophysics, Space Physics and Engineering Research (CASPER), is working on the ground station, which will be located at CASPER's Hypervelocity Impacts and Dusty Plasma Lab on Texas State Technical College Waco's campus.

Once the station is operational, Baylor students and faculty will be able to monitor the satellite and download data. The satellite provides 25-meter resolution images that yield detailed pictures in both the visible and infrared. Researchers like White, as well as those in businesses and emerging industries, do not currently have access to such data, which can be used in a variety of diverse research and industrial applications.

"This satellite can revolutionize the way we gather data," says White. "For instance, we can monitor algae growth in reservoirs, gathering information that could help us reduce treatment costs. Or we could track photosynthesis in plants to gain an understanding of the planet's ability to absorb carbon dioxide – good information to have in time of global warming."

White, who also serves as the director of The Institute for Ecological, Earth, and Environmental Sciences (TIE<sup>3</sup>S), says that this opportunity "provides an interdisciplinary teaching and research program in which multiple earth resource issues can be addressed by different natural science perspectives." A true team effort is required to collect and interpret the data, with both universities benefiting from the relationship and the interdisciplinary forum. Stuttgart brings technological and engineering expertise, while Baylor provides the scientific connection.

"Students in [Baylor's TIE<sup>3</sup>S] should have the spatial skills necessary for understanding the remote sensing data provided by Stuttgart, coupled with the hard science background to apply this information to real-world environment issues," says White.

Other opportunities, says Campbell, could come after the Stuttgart students launch their next satellite, one that is so user-friendly it's called a "flying laptop." Baylor students might be able to program the satellite or partner with companies to demonstrate space applications of their software programs.

The ground station is the first joint project between Baylor and the University of Stuttgart, but Kephart says it will certainly not be the last. Also on the horizon are student and faculty exchanges, further research efforts, seminars and academic meetings and research opportunities for students and young scientists. Kephart says the exchanges could conceivably expand to include not only science and business faculty and staff, but humanities and language faculty and staff as well.

**"This is a win-win for both universities."** 

## DICK CAMPBELL

Baylor mechanical engineering lecturer and CASPER member





# educational outreach

"The future of Waco is dependent upon a workforce that is capable of meeting industries' need for scientifically and technologically literate employees. The responsibility for producing these kinds of employees within our community falls directly on Waco ISD."

— Dr. Roland Hernandez,  
Waco Independent School District Superintendent

## Creative Education

education on a Saturday.

education in the mud.

education beyond the classroom.

re-thinking education.

Preparing students for educational success begins at an early age, but it also means preparing parents, working with teachers, developing curriculum, and thinking beyond the classroom and through the eyes of the students.

GEAR UP Waco, Gaining Early Awareness and Readiness for Undergraduate Programs, is an educational research project designed to prepare students for educational success. A partnership grant through the U.S. Department of Education, GEAR UP Waco is uniting Baylor researchers with school districts, businesses and industries, and other community partners to help prepare students for post-secondary success. Baylor University's \$11.4 million research grant is designing and assessing science, technology, engineering and mathematics, or STEM, curriculum, implementing innovative classroom practices and teaching students how exciting and rewarding these subjects – in and out of the classroom – can be.

Part of educating a child starts with parental involvement. "Studies show that when parents are involved in their children's education, children succeed more than if the parents were not involved," says Dr. Jewel Lockridge, GEAR UP Waco's director. "Recent surveys of Waco parents revealed limited family knowledge and engagement as specific challenges that GEAR UP Waco would need to address."

One part of GEAR UP Waco is the implementation of programs that educate parents in how to assist their children. One example is Learning English Among Friends, a literacy program targeted towards parents and guardians and their children designed to help break the language barriers within the Waco community. GEAR UP Waco partnerships are also providing English as a Second Language classes, computer literacy, and GED classes to limited English speaking adults living in the Waco community. In addition, parents receive information on how to get involved with their children's education and in various aspects of their college preparation.

### curriculum development

GEAR UP Waco makes it a priority not only to focus on the students, but also to assist their teachers. Teaching the teacher is just as important as teaching the students and GEAR UP Waco offers professional development and training to local teachers, says Dr. Cynthia Hernandez, assistant director for educational research and outreach for the Center for Astrophysics, Space Physics, and Engineering Research. In addition to workshops and training, GEAR UP Waco partners are also working to enhance and build upon existing K-12 curriculum.

"The curriculum will prepare students not only to master the Texas Assessment of Knowledge and Skills but to prepare them for rigorous college level classes," says Cynthia Hernandez.





## physics circus

Every spring at Baylor the circus comes to town, but instead of clowns and animals, it's light waves, neon tubes and electricity demonstrations that draw students in for more.

The three-week Physics Circus takes a minimum of 13 researchers, faculty and staff devoting their time and effort throughout the year to produce and present, says Dr. Truell Hyde, Baylor's vice provost for research.

The circus is one outreach effort within Baylor's Center for Astrophysics, Space Physics and Engineering Research and is supported by faculty and staff from CASPER, physics, mathematics, Baylor's School of Education and School of Engineering and Computer Science, and is conducted in partnership with Texas State Technical College Waco.

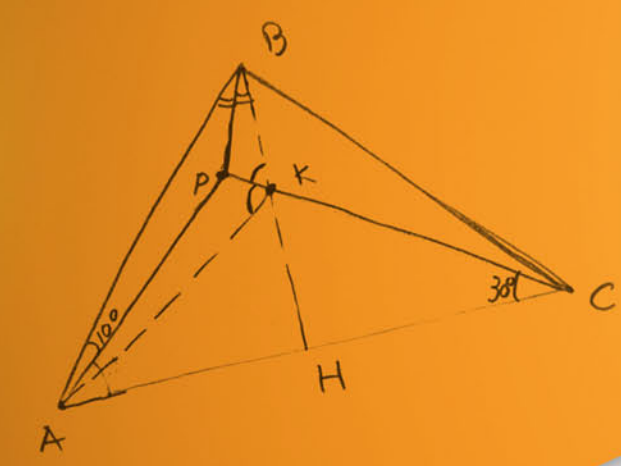
Students participating in this entertaining educational experience learn things such as why a beam of white light can be split but laser light can't or learn how to operate a larger-than-life wave machine to see a first-hand demonstration of wave motion.

"The elements of the circus are built around both national and state educational standards," says Hyde, who also serves as the director of CASPER.

"The Physics Circus is a wonderful opportunity for the kids to see [science] first-hand and have a hands-on experience so they can be better prepared for the TAKS testing," says Dr. Roland Hernandez, Waco Independent School District superintendent. "When these kids are in the class and tested on the material, they will not only remember what they learned in class but what they saw at the Physics Circus."

After the theater portion of the circus, students interact with Baylor and TSTC Waco faculty, staff and students in the "Physics Fun House" touching, seeing, feeling and playing with science-related exhibits.

Lockridge says that "as a result of GEAR UP Waco programs like the Physics Circus, students walk away with the realization, 'That's math? That's science?' Once they understand that, they realize that science and math are not out of their reach after all."



## math fun

Re-thinking education through GEAR UP Waco has led to education on Saturdays. While kids might wake up early to watch Saturday morning cartoons, it's hard to believe that kids would jump out of bed on the weekend to go to a class, and not just any class, a math class.

Even so, this is what the Math Initiative does throughout the year and during the summer – inspire students to learn math in new ways. "The fact that kids would come on a Saturday is amazing," says Dr. Trena Wilkerson, one of the directors of Math Initiative.

In order to keep students interested in coming, Math Super Saturdays have created innovative ways of teaching STEM-related education through integration with the real world. For example, "Do You Have Math in Your Bones?" gave students a hands-on forensic science experience by taking measurements of different bones to determine height, gender and ethnic background. Once these measurements were complete, the students took measurements on themselves to analyze the accuracy of their formulas. Other topics have included, "Boxes, Buildings & Bathtubs!" applying geometry; and "Let's make a Deal," which introduced probability while informing students of the connection between careers and college.

While some students are attending music or sports camps during the summer, the GEAR UP Math Initiative hosts more than a hundred eager students in Project STOMP, or Summer Travel Opening Mathematical Possibilities.

"We wondered how [the students] would feel about coming in the summer," says Wilkerson. "But they came back, almost without fail, every day."

Both the summer camp and Math Super Saturdays help students prepare for tests but also make a real-world connection between math and job opportunities.

"We want students to be immersed in mathematics so that they are strengthening their mathematical background, developing and maintaining a positive attitude and disposition toward the study of mathematics and making connections to possible careers," says Wilkerson. "That translates into opening mathematical doors for their future and having a lot of fun while doing it."





## marsh madness

Collecting mud is now an educational task. Students are visiting the Lake Waco Wetlands to explore how science, math and technology come together in the natural world through GEAR UP Waco's Marsh Madness program, led by Dr. Robert Doyle, chair of Baylor's biology department.

Marsh Madness encourages students' sense of curiosity about the natural world, and gets them "outside and muddy while participating in hands-on science activities," says Melissa Mullins, a doctoral student in Baylor's Center for Reservoir and Aquatic Systems Research.

Marsh Madness students collect data at the wetlands, form hypotheses about their observations, and analyze and present data to each other.

"It's a lot of fun to watch a child who doesn't want to touch anything forget that mud is yucky and get in the water to measure temperature or catch invertebrates, once they see one of their friends do it," says Mullins, who also serves as the Marsh Madness environmental educator.

Marsh Madness activities mirror real-world work, according to Mullins. "Scientists work in much the same manner, collaborating with other scientists and presenting their data to their peers," she says.

The Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, U.S. Army Corps of Engineers and City of Waco all assist the Marsh Madness program. These experts speak to students about how science is involved in their careers, and Mullins says that while students may not express a direct desire to be scientists when they grow up, "we still try to demonstrate to them that any career they choose will require them to have an understanding of science and math."



## project democracy

Most adults fear public speaking, but GEAR UP Waco is introducing young students to public speaking and critical thinking through Project Democracy.

"People are concerned about speaking in public because it really puts you out there," says Dr. Karla Leeper, Project Democracy director. Sometimes the audience will agree with you and sometimes they will not. The purpose is to get students to prepare for a speech and take the stage with confidence.

"Students who have experience in public speaking understand that if you prepare carefully and speak confidently you will be more successful in getting people to agree with you," she says. "And if you have prepared carefully, the fact that people may disagree with you isn't scary. We should all welcome a friendly discussion of our ideas. That is how the best ideas to address our problems emerge."

The program is more about a method than a subject. Students learn critical debate skills by examining a variety of concepts – from government and politics, to science- and math-related subjects.

"We teach students a way to approach problems that face them. If students can learn to break a problem apart, to think about it carefully and to develop their ideas thoughtfully, then they can tackle any subject," says Leeper.

Project Democracy is more than just a public speaking program; it also teaches students essential skills necessary for classroom success and beyond. "Project Democracy is designed to help students improve their research, writing, critical thinking and problem solving skills," says Leeper. "These skills are crucial to success in middle and high school, college and the workplace."

## city involvement

The measurable success of GEAR UP Waco has driven several community leaders, with Waco Mayor Virginia DuPuy at the helm, to begin working on a city-run program that builds on GEAR UP's proven techniques. DuPuy says she is impressed with the way GEAR UP Waco is helping the community.

"These children are our current and future citizens," she says. "We are working to develop community initiatives...that will help prepare students for secondary and postsecondary education."

GEAR UP Waco's unique approach to the program has been noticed at the national level. In July, Lockridge, DuPuy, Dr. Sharon Shields and Dr. Roland Hernandez, La Vega and Waco Independent School District's superintendents, presented their initiatives at the National Council for Community and Education Partnerships/GEAR UP Annual Conference in Washington, D.C. The program was selected to present based on successful efforts in joining a community for one purpose: educating students.

"Our session revealed how GEAR UP Waco has begun applying strategies for leading change in a multi-partner initiative," says Lockridge. The strategies can be applied to any type of organizational change. "As a result, GEAR UP Waco has developed a broad, evaluation-driven system that engages many stakeholders from the community."


Baylor University, La Vega and Waco Independent School District's partnership strengthens academics by "transforming the culture of the institution through leadership development, implementing research-based practices, evaluating the effectiveness of current programs, and by building capacity in the educators to deliver quality instruction,"

says Cynthia Hernandez. In addition, relationships and mentorships are built as school teachers and Baylor faculty work side-by-side while learning academic content.

Lockridge says, "GEAR UP Waco is the catalyst for collaboration that transforms the community into one where students are prepared to enter and succeed in postsecondary education."



**Students don't usually work hard at science, technology, engineering and math – or at least they don't enjoy working hard at it.** Re-thinking education and engaging students beyond the classroom is bringing the thrill of education to children around Waco. As a result, Waco students are working hard, succeeding, learning and having fun throughout the process.

"I've seen the excitement first-hand and have spoken with the students who go on field trips and participate in GEAR UP Waco's programs and it is making a difference in their education," says Roland Hernandez. "Learning is more enjoyable to them and to have a good time in education and be a part of something that's fun, means the educational connections will stay with the students." 





# Informal Learning:

Exploring and Educating at the Mayborn Museum

Students, teachers and families met Amelia Earhart and other female aviators last spring. They forecast the weather on television, said hello to a leopard gecko, and investigated what likely happened to a herd of mammoths that died near Waco tens of thousands of years ago.

Sightseers, teachers and children accomplished all of this under the roof of the Mayborn Museum Complex, a 4-year-old treasure that houses a natural history museum and a hands-on wing with 16 discovery rooms. Behind the museum is a historic village that rounds out the experience of visiting what people call "the Mayborn," shorthand for a fascinating combination of past and present with a scientific look into the future.



The Mayborn combines the Strecker Museum, the Ollie Mae Moen Discovery Center and the Gov. Bill and Vara Daniel Historic Village. "Their pre-existence made blending them easier," says Dr. Ellie Caston, director of the Mayborn complex and former operations director at Strecker. The strength of the programs and exhibits at each also paved the way for Mayborn's focus on science, technology, engineering and math. "The Strecker Museum started with the science part of it," Caston says, referring to the natural history museum that started as Baylor's scientific collections in the 1800s.

Workers at the Mayborn add the discovery center approach – fostered by the Ollie Mae Moen Discovery Center, formerly in downtown Waco – by taking scientific items and interpreting them for visitors. They use educational techniques that have a broad appeal and then, says Caston, "They take that great content and create these exhibits and programs."


The discovery center approach broadens Mayborn's offerings through technology exhibits and programs on topics like physics and simple machines, says Lesa Bush, assistant director of visitor experience. The result is a balance between education and public programs, she says.

It is apparent that the museum's "please touch" philosophy works. The proof is in the popularity of the "discovery boxes" that teachers and others can check out for one or more weeks, says Denise Seaman, coordinator of education. Students in Baylor's education school created the first of these 12-by-15-by-24-inch containers in the 1980s as a way to provide educational materials to local school teachers. Today there are 36 themed boxes, each containing teachers' guides, books, items to copy, and things for young hands to hold and use.

Teachers reserve and borrow the boxes free of charge, and museum workers and Baylor students continue to create new boxes and maintain existing ones.

Also a hit are the traveling exhibits like the *National Geographic™ MAPS: Tools for Adventure* which included a "sneak peek" performance by a student playing Amelia Earhart.

The energy room is getting a model home that engineering students will build, in a collaboration between Baylor's School of Engineering and Computer Science, the Baylor-Waco Foundation and the museum. Engineering students also installed solar panels on the Mayborn's roof, and the power from those feeds back into Baylor's grid, Bush says. Thus, even the non-museum exhibits are educational. "Our role here is a really important link between the community and Baylor," she says.

It is all part of a plan, Caston notes. "We knew the operations, we knew what we wanted to accomplish, and that led to the design and exhibits." And that, she says, leads to a museum staff, many of them former classroom teachers, who love teaching children and adults "how much fun learning can actually be." 





# educational enrichment

## Campus Connections

“Business drives economic development and businesses run on outstanding employees. These employees locate where their children can get a good education, learn a musical instrument, and be exposed to the humanities in a vibrant and dynamic fashion.”

– Dr. Truell Hyde, Vice Provost for Research

If it's variety and quality students and their parents are looking for, Baylor has it. From learning about quarter notes to picking up a tennis racket to the University for Young People, Baylor routinely enriches Waco-area residents' educational experiences by providing programs for newborns to seniors in high school and all ages in between.

Jim G. Vaughan, president and CEO of the Greater Waco Chamber of Commerce, says, “The spark that makes Waco a great mid-size city comes from our ties with Baylor including the university's outstanding programs in music, art and athletics.

“Baylor and Waco are inextricably linked. The university's faculty, staff and students bring creativity and cultural resources to our city, and we provide an eager and appreciative audience including children, young people, adults and visitors.”

### acoustics

“You have to learn the notes, and I write them down at home so I can know and practice until I get them perfect,” says Woodway Elementary second-grader Alex Blanton of her piano lessons in Baylor University's Piano Laboratory Program. Through the program, Baylor's undergraduate music pedagogy students and master's-level teaching assistants provide group and individual piano lessons to first- and second-grade Waco-area students under the supervision of program director Lesley Sisterhen.

The purpose of the program is not just to develop pianists, but “to develop people who love and appreciate music – that lifelong love, that lifelong appreciation for music. It really enriches the culture of our community,” says Dr. Sisterhen, who is also director of piano pedagogy and an assistant professor of piano. Weekly student group lessons use keyboards while private lessons are on acoustic pianos. Classes are limited to around 10 students, and this year the class averages one teacher per student. “Generally our fees are less than a typical teacher,” says Sisterhen, noting that Baylor offers twice the length of instruction for the same cost most teachers charge. Most private lessons typically last a half-hour, while Baylor's is a full hour. During the semester, students take 15 lessons at a cost of \$200.

“[The program] offers quality education for people over a wide spectrum of income levels and class levels. ... We don't want to just offer the best music education to only the people who can afford it. We want to make it available for all families,” says Sisterhen, pointing to the enrichment the program affords the local community. Alex's mom says without the program she's not sure her family could afford private lessons, since 8-year-

old brother, Ethan, takes lessons with Alex, too. Students learn about listening for varied dynamics, being good audience members and performing for their classmates, and they get the added motivation of interacting with their peers. Alex says what she enjoys most about the group lessons is the helpfulness of the teachers. “If you don't understand something you can just raise your hand, and they'll come and help you,” she says. Sisterhen also serves as the director of Musikgarten, special music classes for newborns to five-year-olds. The classes are designed to develop language, motor skills and imagination. “One of the greatest things about the program is the way that it nurtures the bond between parents and children. You see the joy of music-making happen,” says Sisterhen. The class also provides social interaction for parents who may stay afterward to visit with one another. “It almost seems like a lot of parents are isolated, and they don't get to communicate with other people who are going through the same experiences that they are.” The class helps parents approach parenting from a more positive perspective, Sisterhen says, because they enjoy attending and interacting with other parents.

When it comes to enriching their children's lives, “a lot of parents know they should be singing to their children and that they should be including songs and musical activities because there's been research to prove that it helps with the development of their child. ... But since folk songs aren't a real integral part of our culture, a lot of the time they don't know the songs to sing,” says Sisterhen.



**DR. LESLEY SISTERHEN**

Director of piano pedagogy and assistant professor of piano





The Musikgarten curriculum provides parents a CD they can use with their children at home as a resource.

For an average of a dollar and a half a lesson, third- through fifth-graders can learn to play the violin, viola, cello or bass through the Baylor University String Project, which began last September through the help of a grant. This project is designed to be self-sustaining after five years. Currently, there are just under 50 students taking lessons, which occur in a group setting to help keep the cost of the lessons affordable. Twenty-two lessons each semester cost a total of \$35.

"In the community, anything we can do to make the [performing arts] accessible to children is going to improve the cultural quality of the city," says Dr. Michael Alexander, director and master teacher for the BU String Project and associate professor of music education. "Whether they continue or not later in their schooling, the fact that they at one time played an instrument and understand those concepts, there's a lot of research that [shows] playing an instrument develops certain parts of the brain."

Alexander says Waco-area students who start the BU String Project in the third or fourth grade can become advanced instrumentalists much earlier since they normally wouldn't have had the opportunity to begin playing in school until the fifth grade. If they continue in Baylor's program as fifth-graders, they are likely doubling the amount of instruction they receive at school.

"I don't think I will ever forget these children," Alexander says of his inaugural class of students, a smile in his voice.

Other music programs include band and orchestra camp for middle- and high-school students who spend a week on campus each summer. The programs bring in about 600 students combined from the Waco, Dallas-Fort Worth, San Antonio and Houston areas. The high school camps have been taking place for the past 30 years.

## athletics

If music isn't a match, students might give tennis a turn. Tennis Camp Coordinator Rachael Scrivano says Baylor's tennis camp is geared to meet the needs of every level of player. "We take kids who have never picked up a tennis racket before all the way to kids who have national rankings." Typically about 100 students ages 10 to 18 sign up for the camp each year.

Campers are placed in groups of five and paired with one instructor. Because they come from Waco and the surrounding region, the interaction is also a good opportunity for players to see how students from other schools do things, says Scrivano.

Participants stay busy from seven in the morning until ten at night. In the mornings, coaches demonstrate a theme for the day, and then players work in small groups. There's an afternoon session and evening team competitions, a player favorite. Several of Baylor's tennis players work as coaches for the camp. During the week they hold an exhibition match for the students and have a time for signing autographs afterward.

Players who want to work on their game can take 30-minute private lessons with one of the Baylor players during camp free time at no extra cost every day if they choose. "The [student] who really wants to be serious and improve his game has lots of opportunities to do that," says Scrivano. For an extra fee, campers can get a 30-minute video analysis of their game.

"Tennis is a lifetime sport. You can play it all the way up until you're [older]," says Scrivano, noting that the sport keeps people healthy and active.

Director of Basketball Operations Johnny Derrick says 600 basketball players make their way to the women's basketball camps each summer. He says that players who attend the Advanced Skills Camp have ambitions of playing Division I college basketball. For seasoned players, "the camp gives them an opportunity to test their skills against players that they might not normally see because we have campers that are coming from a wide area."



For the Individual and Day Campers, often times, "They may not have the same level of skills, but they're all coming for the experience." Just like tennis camp, participants stay busy around-the-clock. One thing that sets Baylor's camp apart, Derrick notes, is the involvement of Baylor's staff and coaches, including women's basketball head coach Kim Mulkey. Derrick says camp participants won't always find that at other camps.

When it comes to educational enrichment, Derrick says many parents who bring their campers back year after year say to him, "You'd be amazed at how much [my child's] self-esteem, her confidence, went up because she was exposed to your camp."

Baylor's Lady Bears are also involved in the camp working with the attendees. For those at the camp, it is often one of the highlights. "The fun part is to see a kid's eyes light up, and they see the players that they've watched on television. This person becomes real to them," Derrick says, pointing out that players teach the campers new drills and work with them on their techniques.

There are many other athletic camps for children. Soccer Associate Head Coach Paul Jobson says the camps provide enrichment for kids by getting them away from the television and gaming systems. "Obesity in kids is on the rise and athletic summer camps can help get kids interested in fun activities that are good for their health," Jobson says, adding the coaches also talk to kids about healthy eating habits.

## art

As a student on Baylor's campus at age 12, Amber Franklin got a taste of a future she knew she wanted. She made her own class schedule, reported to class on time, met with her counselor and walked among other Baylor students.

Thanks to the suggestion of her fifth grade teacher, Amber received a scholarship to attend the University for Young People (UYP). A year after she applied, a space opened up, and she received an unexpected letter in the mail that she had been accepted into the program. "I'm thankful that everything fell into place," says Franklin, now age 19.

University for Young People is for first- through twelfth-grade gifted and talented students, and has been operating for 24 years.

Dr. Mary Witte, Director of the Center for Community Learning and Enrichment, which oversees the UYP, says it's especially helpful for children who attend from rural schools where there may only be one or two gifted and talented students. "This allows them to be with a large group who are like them," says Witte, who notes that sometimes these students are made to feel different from their peers.

Each year since 1999 Waco has awarded more than 60 UYP scholarships to students like Amber. The Project Promise scholarships, as they're known, are part of a grant through the city of Waco and U.S. Housing and Urban Development funds.

"What we're trying to do for them is help them understand what it takes to go to college because they have the intellectual ability to do it," says Witte, who is also a senior lecturer in the Baylor Department of Curriculum and Instruction. "They may not know how since possibly they may be the first one [in their family] to go to college." Like Amber, most students continue in the program through graduation.

The younger grades have a set curriculum that stays the same from year-to-year so that students get a new experience as they progress in grade level. For the upper grades, instructors from Baylor and the community submit proposals ranging from the sciences to social studies and sewing to sculpting. From a catalog, students can select classes offered at different times of the day during different weekly sessions.

Also under the umbrella of the Center for Community Learning and Enrichment is the Interdisciplinary


Creative Problem Solving Conference, another day program with 19 years of history for seventh- through twelfth-graders. Gifted and talented students and their teachers arrive on a Friday ready to solve the world's problems – at least one of them – in a little less than 24 hours.

This year's challenge: social networking, which is an online network that connects people with common interests by way of email, chat rooms, messaging or blogs, to name a few. Witte says social networking can bring about safety, economic and political situations, all considerations for the students to discuss. "They're constantly brainstorming and then making decisions."



Teams come up with what they perceive to be the most important problem that "if they could solve that problem that all of the little problems would be solved," says Witte. Their best solutions are shown through a skit, banner, PowerPoint presentation and brochure.

The depth and breadth of Baylor's music, athletics and art programs is vast. Programs like the BU String Project, basketball camp and the Interdisciplinary Creative Problem Solving Conference are only a few of Baylor's countless programs.

Programs like the University for Young People changed Amber Franklin's life. She describes coming from a single parent, low-income family where college was rarely discussed. "UYP [helped] me achieve a goal that opened that whole door to college and wanting to have goals besides just graduating high school," says Franklin, who still keeps in touch with the teacher who told her about the scholarship program for University for Young People. "It's so much easier to see that you can do it if you get a little taste of it." 







# quality of life

"Economic development and great universities are about attracting talented and creative people. The university's programs in arts and humanities make our community richer and enable us—Baylor and Waco—to attract the best and brightest."

— Jim Vaughan, Greater Waco Chamber of Commerce  
President and CEO

## A look inside the campus

Making Waco a place where families and businesses can grow and prosper in a rich cultural environment is one more contribution Baylor University makes to the economic development of central Texas.

Enhancing the quality of life of the local community comes naturally to Baylor University and has for decades. The students, faculty and staff provide numerous public opportunities throughout the year. Baylor not only enhances the community's quality of life, but makes Waco an attractive option for new businesses and for those looking to relocate.

"Waco has a lot more to offer than being close to Dallas and Austin," says Sherry Ward, audience development director for the Baylor Department of Theatre Arts. "Waco is a great place to live and Dallas and Austin residents need to come to Waco to see what we have to offer." In fact, Waco gives the community entertainment options that the larger city markets to the north and south of Waco don't, adds Ward.

### theater

For a sampling of up-and-coming stage talent, visit one of the Baylor Department of Theatre Arts performances. "[We] offer the community a wide variety of shows at very affordable prices," says Ward. Ticket prices are \$10 to \$15, but discounts are available for high schools and large groups.

Professional productions can run anywhere from \$20 to \$75, and while Baylor's performances are an assembly of students, they are certainly an enjoyable experience. "I like to tell people that our audience gets to see future professionals just before they make it big," says Ward. "This is the last opportunity to see these actors and designers at this low ticket price."

The five- or six-show main stage season runs during the academic year, which means there is a new play almost every month. During the summer, graduate students entering their second year direct and produce their first play. Ward comments that the midsummer performances are sometimes the best and that the students are really given a time to shine.





The theater department likes to choose a broad repertoire which includes off-Broadway plays. "We like to have a variety in the season including some contemporary and some classics, as well as new and cutting-edge plays," says Ward. That even sets Baylor Theatre apart from other university theater departments.

"We do shows that are not being done around town and our season offers the kind of variety that you would see in a professional theater," says Ward. "We take the artistic excellence that you would expect from a professional company."

There are no professional theaters in Waco. The Hippodrome brings in out-of-state professional touring productions, but they are not produced in Waco and the cast is not comprised of Waco actors, says Ward. Baylor faculty are professionals, and professionally connected, and they perform encore professional productions for the students and community during the summer.

In addition, other performance faculty consistently work outside Waco to gather research experience to incorporate in the classroom. This research immerses the faculty in their craft and directly benefits the students, says Ward.

While the focus of the theater department is on training students, the department is highly interested in the local community. "One of our primary goals is to extend our circle outside Baylor," says Ward. "Waco is a very culturally aware community and [our shows] are designed with the artists and community in mind."

"There is nothing like the Baylor Theatre in Waco."



## school of music

For more than 100 years, Baylor's music program has offered free public concerts and performances to the community. With an emphasis on classical music, students, faculty and guest artists perform publicly almost every day of the year.

"Last year, we presented a total of 405 events of all kinds," says Dick Veit, concert and promotion manager for Baylor's School of Music. "This figure includes such things as music lectures and master classes, but the majority are actual performances."

Within the classical format, Baylor offers a wide variety of performances. "I really do think we offer something for everyone's tastes – orchestral, band, opera, vocal, choral, chamber, piano, percussion, instrumental, solo, electronic, [and more]," says Veit. There are also outdoor carillon concerts and two jazz ensembles that perform on- and off-campus.

"On an annual basis, the Baylor University School of Music offers our community hundreds of opportunities to hear wonderful music, and all of the performances are either very reasonably priced or totally free of charge," says Veit.

Events that do require a purchased ticket usually cost around \$5, and the Distinguished Artist Series runs \$15 a piece. It's a nominal fee when compared to professional groups. By comparison, the Dallas Wind Symphony charges \$17 to \$38 a ticket, while Baylor's Wind Ensemble is free of charge, says Veit.

The level of professionalism displayed in the student performances comes remarkably close to paid professionals, and guest artists and faculty are professionals. There are three faculty ensembles, brass, woodwind and string; and weekly student chamber concerts in brass, woodwind, string and percussion.

"It is no exaggeration to say that we are one of Waco's greatest resources in the arts," says Veit.

## martin museum of art

Tucked away in the Hooper-Schaefer Fine Arts Center is the Martin Museum of Art.

In the Martin Museum of Art's 25-year history, it has never charged admission for its exhibits, speakers and guest artists. A comparable art museum would typically cost \$6 to \$12. The Martin Museum of Art is also the only actively-collecting art museum between Austin and Dallas, says Karin Gilliam, Martin Museum of Art director.

There are approximately 13 exhibits each year and each lasts five to six weeks, says Gilliam.



"We try to bring in artists and speakers for every exhibition, and our Art Angel funds enable us to do that," says Gilliam.

The Art Angels, formed in 2005 to provide museum support, raise funds for the museum, as well as make it a priority to increase museum awareness. Gilliam calls the Art Angels, "museum ambassadors."

"There are many people that have never heard of the Martin Museum of Art, but the Art Angels are helping to change [that by] spreading the word at community functions and Baylor functions," says Gilliam.

In addition to the exhibits, the museum houses and cares for a permanent collection valued at more than \$2 million.

The 1000-piece collection of historical and contemporary art in all media is on display during the summer months.

## athletics

Baylor athletic events occur on every day of the week providing something for everyone to attend during the academic year. From football to the newly founded equestrian team and everything in-between, Baylor athletes entertain the Waco community with athletic talent.

Tickets to many events are free, but even events requiring tickets are usually cheaper than most Big 12 events.

The Ferrell Center seats more than 10,000 people and hosts volleyball and men's and women's basketball. Floyd Casey Stadium seats 50,000 with participants often tailgating in a family-friendly environment before football games. The baseball team plays at the 5,000-seat Baylor Ballpark; adjacent to the ballpark is Getterman Stadium, home to the women's softball team.

There really is a sport for every fan. Baylor has teams in cross country, track and field, women's golf, men's and women's tennis, and equestrian.



For ticket and performance information about Baylor Theatre, visit [www.baylor.edu/theatre](http://www.baylor.edu/theatre)

For recorded information about upcoming concerts, call the 24-hour ConcertLine at (254) 710-4200.

For more information on upcoming exhibits at the Martin Museum of Art, visit [www.baylor.edu/martinmuseum](http://www.baylor.edu/martinmuseum) or email [martin\\_museum@baylor.edu](mailto:martin_museum@baylor.edu)

For more information about Baylor Athletics, visit [www.baylorbears.com](http://www.baylorbears.com)



student outreach

The university offers endless quality of life events throughout the year, and Baylor students offer countless hours to the life of the community.

In 2006-2007, "our student organizations reported nearly 57,000 hours of community service and raised nearly \$60,000 for various charities and philanthropies," says Karin Klinger, associate director of student activities. "If you were to include hours completed by individuals, staff, faculty and unreported organizational service hours, we estimate that the Baylor community is actually completing approximately 100,000 hours of service each year."

From the moment new freshmen or transfer students walk on Baylor's campus, they are educated on how to get involved in the Waco community. A Service Agency Fair is held during Welcome Week, and again during Dr. Pepper Hour, to "allow local service agencies to come to campus and educate students about their work with the various populations in need in Waco and invite students to volunteer with their organizations," says Klinger.

The needs of any community are vast and Baylor assists more than 140 agencies throughout the year. On a weekly basis, Baylor students mentor at-risk children, deliver meals to victims of domestic violence, help keep school-age children out of trouble with after school events, participate in the Meals on Wheels program and more, says Klinger.

"It's amazing to see our students connecting to the neediest members of the Baylor community," says Klinger. "Through this service connection, Baylor students are equipped to better understand the needs of those around them, begin to call Waco 'home,' and develop a sense of civic responsibility."

From music filling concert halls, to artwork adorning museum walls, to live theater performances, to spectator and educational events, Baylor offers the community talent, culture, entertainment, excitement and service. When in doubt of what to do, turn to Baylor and you're always guaranteed to find something of value, suitable for the family and enjoyable.

Wacoans don't need to travel up and down the I-35 corridor to find an activity to participate in or cultural event to attend. No, they just need to look in their backyard, where Baylor stands proudly.

Waco is home. 🌱



Graduate Degrees at Baylor

Accounting — MAcc, MAcc/BBA	Educational Administration — MEd	Music Composition — MM
American Studies — MA	Educational Psychology — EdS, MA, MEd, PhD	Music History and Literature — MM
Air Science and Environment — IMES	Electrical and Computer Engineering — MSECE, MSECE/BSECE	Music Performance — MM
Biology — MA, MS, PhD	Engineering — BSECE/ME, BSME/ME, BSE/ME, ME, ME/MBA	Music Theory — MM
Biomedical Engineering — BSE/MSBME, BSECE/MSBME, BSME/MSBME, MSBME	English — MA, PhD	Nutrition, Fort Sam Houston — MS
Biomedical Studies — MS, PhD	Entrepreneurship — MBA	Philosophy — MA, PhD
Business Administration — MBA, MBA/JD, MBA/ME, MBA/MSCS	Environmental Biology — MS	Physical Therapy, Brooke Army Medical Center — DScPT
Business Administration, Dallas, Austin — EMBA	Environmental Studies — MES, MS	Physical Therapy, Fort Sam Houston — DPT
Business Administration in Informational Systems Management — MBA/ISM	Exercise, Nutrition and Preventative Health — PhD	Physical Therapy, West Point — DScPT
Business Administration in International Management — MBA/INTM	Family Nurse Practitioner — FNP	Physics — MS, MA, PhD
Business Administration/Information Systems — MBA/MSIS	Geology — MS, PhD	Piano Accompanying — MM
Chemistry — MS, PhD	Health Care Administration — MHA/MBA	Piano Pedagogy and Performance — MM
Church Music — MM, MM/MDiv	Health Care Administration, Fort Sam Houston — MHA, MBA/MHA	Political Science — MAPSci, PhD
Church State Studies — MA, PhD	Health, Human Performance and Recreation — MEd, PhD	Psychology — PhD, PhD/MA
Clinical Psychology — PsyD, MSCP	History — MA	Psychology & Neuroscience — PsyD, PhD
Collaborative Piano — MM	Information Systems — MSIS	Public Policy and Administration — MPPA, MPPA/JD
Communication Sciences and Disorders — MA, MSCD	International Economics — MSIEco, MAIEco	Religion — MA, PhD
Communication Studies — MA	International Journalism — MIJ	Religion, Politics, and Society — PhD
Computer Science — MSCS, MSCS/MBA	International Relations — MAIR	Social Work — MSW, MSW/MDiv
Conducting — MM	Journalism — MA	Sociology — MA, PhD
Curriculum and Instruction — EdD, MA, MEd	Limnology — MSL	Spanish — MA
Directing — MFA	Mathematics — MS, PhD	Statistics — MS, PhD
Earth Science — MA	Mechanical Engineering — MSME, MSME/BSME, ME/MBA	Taxation — Tax, BBA/MTax, MTax/JD
Economics — MSEC	Museum Studies — MA	Transition Doctor of Physical Therapy Program — MPT to DPT
		Neonatal Nurse Practitioner — MSN

University Research Centers and Institutes

Baylor Advanced Research Institute	Center for Drug Discovery	Institute of Archeology
Center for Analytical Spectroscopy	Center for Exercise, Nutrition & Preventative Health Research	Institute of Biblical & Related Languages
Center for Applied Geographic and Spatial Research	Center for Family & Community Ministries	Institute of Biomedical Studies
Center for Astrophysics, Space Physics & Engineering Research	Center for International Education	Institute of Ecological, Environmental, and Earth Sciences
Center for Business and Economic Research	Center for Jewish Studies	Institute for Faith & Learning
Center for Christian Education	Center for Ministry Effectiveness and Educational Leadership	Institute of Gerontological Studies
Center for Christian Ethics	Center for Religious Inquiry Across the Disciplines	Institute for Oral History
Center for Christian Music Studies	Center for Reservoir and Aquatic Systems Research	J.M. Dawson Institute of Church-State Studies
Center for Community Learning and Enrichment	Allbritton Art Institute	
Center for Community Research & Development	Institute for Air Science	

Interim Provost > Elizabeth Davis | Vice Provost for Research > Truell Hyde  
Project Editor > Jennifer Kunard | Design > PolleiDesignWorks.com | Writers > Jennifer Alexander  
Barbara Elmore Jennifer Kunard Margaret Sanders Dana Wallace | Photography > Robert Rogers Matthew Minard

Editorial Office: Baylor Research | One Bear Place #97310 | Waco, TX 76798-7310  
phone 254.710.3763 | fax 254.710.7309 | www.baylor.edu/research  
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