

TEXAS LEADER

INVESTING IN THE FUTURE OF THE UNIVERSITY

Supercharged

John Goodenough Professor, inventor

Spring/Summer 2012

Wanted: scientists

Freshman Research Initiative aims to close competitive gap

To remain competitive in an increasingly technology-based global economy, the U.S. needs more scientists. One path to creating more of them is straightforward: Start them early.

That shouldn't be much of a surprise, but, traditionally, cutting-edge university research has been the province of a few upperclassmen, graduate students, and faculty. Not anymore. The Freshman Research Initiative (FRI) in The University of Texas at

Austin's College of Natural Sciences is revolutionizing first-year education, bringing real-world research into the classroom from Day One.

"This program allows us to take all that is awesome about Texas as a research university and directly impact the education of undergraduates," said FRI Director Sarah Simmons.

The old model was partly a numbers game. Principal investigators — faculty members who head research labs — are able to accommodate just a few undergraduate researchers at a time. But throw in doctorate-level scientists (known as "research educators"), graduate students, and peer mentors to work with the fledgling researchers, and there is enough supervision and inspiration to go around.

FRI was born in 2005 with 45 students. Today more than 600 students participate each year, with a waiting list of more than 150. Over six years, more than 2,100 freshmen have participated.

With FRI, research becomes a class that students take for credit, not another extra-curricular activity they have to find time for. That opens up research for a diverse group of students. (Twenty-five percent of students entering the program are first-generation college students, and 25 percent are Hispanic, the fastest-growing ethnic group in Texas.)

"For the first time, with FRI, we have a real way to tap the brain pool that is available across Texas," Simmons said.

FRI participants are more likely than their peers to go on to complete degrees in science. They're more likely

to go on to graduate school. For minority students, retention rates skyrocket. FRI more than doubles the graduation rate for Hispanic students.

Fulbright Scholar Neima Briggs credits FRI with inspiring him to go to medical school, author a journal publication, work on a joint project with the University of North Texas



Letter from the executive director

LOVE YOUR GADGETS? THANK THIS DONOR

Have you ever used a laptop computer, mobile phone, or iPod? Then John Goodenough has touched your life. A mechanical engineering professor at UT, Goodenough helped launch the wireless revolution with his development of the rechargeable lithium-ion battery. This World War II veteran speaks to the Texas Leader about science, spirituality, and his decision to give to the university. See Page 4 to learn what's next for this world-class inventor. Then turn to Pages 6 and 7 to read about other faculty and staff members who believe in UT so strongly that they've included what they love at the university in their estate plans.

Those are just some of the stories you can read about in this edition of the Texas Leader, the gift planning publication of the University Development Office. We're proud to bring you stories about how UT and its people are changing the world. And we're excited to share tips about how you can do the same.

Laura Hansen Dean

Laura Hansen Dean

Executive director of gift planning

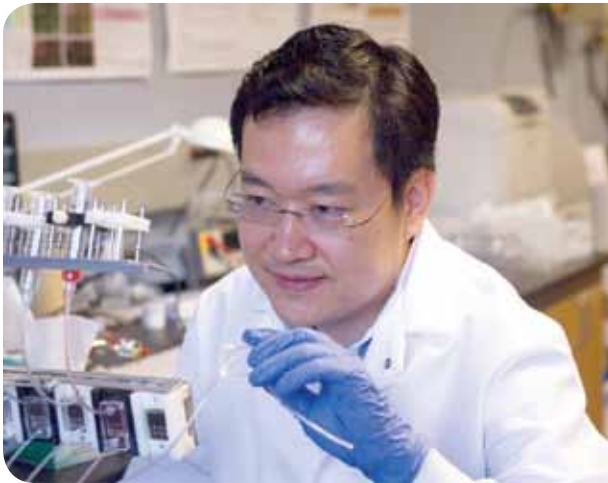


Students in the Freshman Research Initiative conduct real-world research under the guidance of doctorate-level scientists.

Health Science Center Institute of Cancer Research, and apply for the Fulbright.

"The FRI first opened the doors and then provided all the resources and empowerment necessary," he said.

Those interested in supporting FRI may contact Joe Youngblood at jbyoungblood@austin.utexas.edu or 512-475-7085. ✨



FAR LEFT: Assistant Professor John Zhang is researching the early detection of cancer.
LEFT: Professor Grady Rylander, right, and postdoctoral researcher Jordan Dwelle demonstrate how glaucoma-detection technology is used on a patient.

The next great cure

Why it just might come from the Forty Acres

Medical advances at The University of Texas at Austin are changing the world. University researchers are taking aim at such threats as cancer, glaucoma, heart disease, and depression. Read on for examples of the groundbreaking medical research being conducted at UT.

John Zhang, assistant professor of biomedical engineering, is working to improve early detection of **cancer** through a simple blood test that could be applied universally. His research combines unique, disposable microchips with a special microscope that can precisely measure tumor markers. He is also developing new technology that acts as a sort of GPS system for cancer surgeons. The instrument guides doctors during surgery, enabling them to see in real time whether all of the cancerous tissue has been removed, and eliminates the usual 24-hour wait to learn results after a biopsy.

Known as the “silent thief of sight,” **glaucoma** is the second-leading cause of blindness worldwide, largely because the disease is often not detected until it is already advanced. Working alongside a team of graduate students, Professors Thomas Milner and Grady Rylander are helping develop technology to detect glaucoma much earlier than the current gold-standard diagnostics used in clinics. The researchers have created a device that is able to show and measure changes in the eye that can’t be seen through current detection methods.

Cockrell School of Engineering researchers have demonstrated a new and more effective method for regrowing blood vessels in the heart and limbs — a research advancement that could have major implications for how we treat **heart disease**, the leading cause of death in the Western world. The treatment method developed by Assistant Professor Aaron Baker

could allow doctors to bypass surgery and instead repair damaged blood vessels simply by injecting a lipid-encased substance into a patient. Once inside the body, the substance stimulates cell growth and spurs the growth of new blood vessels from pre-existing ones.

Professor Namkee Choi received a grant from the National Institutes of Health to study how to treat homebound adults with **depression**. Her idea: Use the Internet to connect patients and psychotherapists. The pilot program provides laptop computers to homebound patients, allowing them to connect with therapists via Skype, a free videoconferencing program. Nationally, depression affects more than 6.5 million of the 35 million people age 65 years or older, according to the National Alliance on Mental Illness. Rates are higher among those who are homebound or ill. ✨

PHOTOS: MARJORIE SMITH, MARSHA MILLER



Supercharged

Pioneering portable power was just the beginning for this professor and donor

BY ANGELA CURTIS

Take a quick look around.

You're probably within arm's length of a John Goodenough invention. Goodenough, a mechanical engineering professor in UT's Cockrell School of Engineering, helped launch the wireless revolution with his development of the cathodes of the rechargeable lithium-ion battery, which powers our mobile phones, laptop computers, iPods, and other portable electronic devices.

Honored in 2011 as a UT Austin Inventor of the Year, Goodenough has found that his inventions aren't the only way he can change the world. He's also a donor to the university, giving both outright gifts and establishing future gifts to support a lab at the Texas Materials Institute.

"When the faculty give, it shows that they believe in the institution," he said. "I wanted to set an example."

Goodenough's gifts to the university benefit the John B. and Irene W. Goodenough Endowed Research Chair in Engineering, which supports a high-pressure lab in the Texas Materials Institute. The lab measures pressures as high as those found in the Earth's lower mantle.

Temperature is the variable most commonly used in materials testing. The lab adds pressure as a variable, allowing researchers to explore properties of materials not seen under normal conditions.

"I thought the university needed this kind of infrastructure if they're going to be a research university,"

Goodenough said.

Goodenough and his wife, Irene, have created several charitable gift annuities benefiting their endowment. With a charitable gift annuity, you make a gift to the university and in exchange receive a fixed income for life. Goodenough likes the security of knowing he can count on those payments for medical and other expenses. And he likes knowing that after his lifetime the money will be used the way he wants.

Goodenough, who turns 90 this summer, still teaches and still invents. He's still dedicated to finding new ways to store energy.

"The next important problem we need to solve is energy independence," he said. "We need to wean ourselves

from dependence on foreign oil, and we need to reduce CO₂ emissions into the atmosphere.

“That is why I work in the energy area — because I believe it’s something that cries out for a solution and it’s not going to be an easy thing to solve. We’d like to be able to use the wind and the sun as sources of energy, but we can’t do it without energy storage.”

That’s where Goodenough comes in. His latest work focuses on the fundamental properties of transition-metal oxides as well as their use in batteries and fuel cells.

Goodenough first developed the cathodes used in lithium-ion batteries while a professor at England’s Oxford University. Before heading the inorganic chemistry lab at Oxford, Goodenough worked at MIT’s Lincoln Laboratory, where he was on the team that developed the first random access memory for computers. He retired from Oxford and in 1986 joined UT, where he continued to improve lithium-ion batteries, patenting a lighter, longer-lasting version (intended for use in power tools and electric vehicles) with UT and the Canadian company Hydro-Quebec.

Goodenough is clear: He doesn’t work alone. His teams include post-doctoral researchers, students, and visiting scientists. He compares himself to the conductor of a symphony.

“I think my talent has been to create an environment in which other people can be creative,” he said.

He developed a strong appreciation for teamwork while serving as a meteorologist during World War II.

“As a soldier, I was one fellow in a great machine,” he said. “I wasn’t going

to win the war by myself, but it was important that I do my job to the best of my ability.”

Individual excellence is important, too. The university’s well-rounded education — emphasizing both the humanities and the sciences — prepares students not only for careers but also for life, Goodenough says.

“There’s a difference between being trained and being educated,” he said.

Goodenough was educated. He studied the classics in secondary school — he can still rattle off a string of canonical Latin quotations — then shifted to math as an undergraduate. After the war, he started fresh with a challenging new discipline: physics. Goodenough’s

“I think my talent has been to create an environment in which other people can be creative.”

“The only thing they tell me that I have left is theology.”

He’s only half joking.

“If I were to retire from the university, I would then go to writing in another venue entirely,” he said. “I would be tempted to actually take that step into theology.”

He doesn’t see it as much of a leap.

As a scientist, Goodenough believes in the laws of nature, but he also believes in the laws of a higher power. He has written a paper, “Under the Judgment of the Holy,” exploring that idea.

“We have to understand the moral principles that govern life as well as we have to understand the physical principles,” he said.

Dr. Goodenough, second from right, and UT Vice President for Research Dr. Juan Sanchez, right, join Hydro-Quebec representatives in announcing a patent partnership.



specialty — materials science — blends elements of engineering, chemistry, and physics, so he’s had to pick up engineering and chemistry, too.

“I went from the classics to mathematics to physics to chemistry to engineering,” he said.

Being spiritual isn’t just about judgment, though. It’s also about gratitude and wonder.

“All I can say is a mysterious hand has opened doors one after another as were needed, for which I am most grateful,” he said. “And you can interpret that in any way you like.” ✨

The ultimate vote of confidence

For some employees, UT is more than a livelihood; it's a cause

UT employees make their living at the university, yet some turn around and return part of their income to the university. Here we look at UT employee donors, what inspires them, and why they believe so much in The University of Texas.

Jim Boon

About a decade ago, then-Texas Exes Executive Director Jim Boon started noticing that UT was losing academic

superstars to other top universities.

"It's not unlike recruiting a star athlete or anything else," he said. "If we want the very best students, we need to be recruiting them."

So Boon came up with a big idea: create the university's first four-year, full-ride merit scholarship. And thus the Forty Acres Scholars Program was born. In addition to tuition, fees, room, board, and books, the scholarship includes funding for three summers' worth of enrichment activities — including service learning, study abroad, and an internship. This year's inaugural class has 10 scholars, and next year's class will have 15. Boon hopes to keep increasing the number of scholars every year.

Boon has since retired from the Texas Exes and become executive director of the Texas Exes Scholarship Foundation, where he still works to ensure the success of the Forty Acres Scholars Program. When Boon stepped down last year after 17 years at the helm of the Exes, alumni paid him the ultimate tribute: They established a Forty Acres scholarship in his name.



The Jim Boon Forty Acres scholarship quickly found two more enthusiastic donors, Boon and his wife, Betty. The couple are leaving money to the Boon scholarship in their wills.

"I hope the scholarship is going to be around forever and continue to impact the lives of a lot of students," he said. "I hope it will stir some other people to think about their own gift and estate planning."

Randy and Mary Diehl

As dean of UT's College of Liberal Arts, Randy Diehl has seen firsthand the impact of giving to the university. He sees it in the caliber of students and faculty he can recruit. He sees it in the quality of the programs he can provide.

Diehl shares those observations as he travels throughout Texas and beyond encouraging UT alumni and friends to support the university. But in the end, they motivated him.

"Going out and talking to donors and having such a tremendous response, I felt a sense of inspiration," he said. "I talked it over with Mary, and we both agreed that giving was something we wanted to do."

Diehl and his wife, Mary, have designated the university as beneficiary of his retirement plan. If he dies first, the proceeds will create a charitable gift annuity that provides a gift to the university while making annual payments to her. If she dies first, the

proceeds will go directly to the university upon his death.

The Diehls' gift will be split between their great loves on campus, with his portion going to the College of Liberal Arts to support graduate students and hers to the UTeach program in Liberal Arts, where she taught for 11 years. The University's UTeach programs in Natural Sciences and Liberal Arts train future secondary teachers in the subjects they will teach.

"I have a strong commitment to public education, and I feel UTeach is a great way to further this commitment," she said.



Before joining UTeach – Liberal Arts, Mary Diehl taught Spanish in the public schools for 24 years.

The Diehls came to Austin 37 years ago when he joined the faculty as a psychology professor. Through the years, Diehl watched UT rise from a very good regional university to a great world-class university. He decided he never wanted to leave.

“From the beginning, it was something I was constantly reminded of — that people connected to the institution were committed to building excellence — and that impressed me,” he said. “I just wanted to be part of that.”

Vincent R. DiNino



The Longhorn Band wasn't much when Vincent R. DiNino took over as its first full-time director in 1955. More than half a century later, DiNino's influence still lingers.

“You ought to leave it better than you found it, which is what I hope I did,” DiNino said of his 20 years as band director, which saw the band grow from a ragtag group consisting only of white males to the renowned “Show Band of the Southwest.” During DiNino's tenure, the band began admitting women and people of color, enforced strict standards for musicianship and marching, and retired its “high school band style” uniforms in favor of today's cowboy style. It began playing many of the tunes that are still favorites to this day — “Texas Fight,” “Grandioso,” and “The Wabash Cannonball.”

DiNino, who still directs “The Eyes of Texas” at home football games, only grows more committed to the success of the Longhorn Band. Through the years he has established several charitable gift annuities supporting both student and faculty bandleaders. He established a chair for the director of bands and a professorship for the director of the Longhorn Marching and Concert

Band. He has also included a gift to the university in his will and has created a charitable trust that provides him with income now and gives a gift to UT after his death.

“I can't take it with me, so I'm giving while I'm still here — and it's fun doing it,” he said.

Shirley Bird Perry

Writing the epitaph of someone as colorful and energetic as longtime UT administrator Shirley Bird Perry was a tall order, but her husband found a way to capture her essence: “57 years' devotion to The University of Texas.”

“One of the overriding things about Shirley Bird was her intense — and I mean intense — love for and devotion to The University of Texas at Austin,” Sam Perry said.

Sam Perry decided his wife's tombstone should also list some of the more prominent posts she had held during her tenure here — director of the Texas Union, vice president, senior vice president, and vice chancellor of the UT System.

Also a UT alum — the 1958 education graduate received the Distinguished Alumnus Award from the Texas Exes in 2005 — Shirley Bird Perry died of cancer in 2011. She loved all things burnt orange, but one particular passion was university history. When Sam Perry dies, proceeds from their joint retirement accounts will benefit the *Shirley Bird Perry Endowment Fund for University History*. Shirley Bird was instrumental in preserving much of the University's history through the UT Oral History Project, which recor



ded the memories and achievements of the institution's leaders.

The Perrys married in 1963 when she was program director at the Student Union and he was an Austin attorney. Sam still recalls being wowed by Shirley Bird at a party five decades ago.

“She charmed my socks off,” he said. “I was so snowed I called her the next day for a date.”

Janeka Rector

When UT College of Communication alumna Janeka Rector thinks of her alma mater, she thinks of opportunity.

“Education just opens the door,” she said. “You meet so many people and you get exposed to so many interesting ideas that you can't help but be changed by being here.”

Now a staffer on the Gift Planning team who handles data and information management, analysis, and reporting, the

2004 radio-television-film graduate describes her work at The University of Texas at Austin as a dream job.

“Even when you have got deadlines and you've got all this stuff piling up on your desk, at the end of the day you remind yourself that you're not just there for you, you're there for 50,000 students,” she said. “It's pretty good motivation.”

Rector decided to give to the College of Communication — by designating UT as the beneficiary of her retirement plan — because she wanted to make a difference.

“I thought about the fact that there aren't a lot of people who look like me who have their hands in shaping how this college works,” she said. “It hit me one day: I'm one of those people who can do something.” ✨



TEXAS LEADER

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TL Last Word

Help UT, help yourself

Tax benefits set to expire Dec. 31, but gifts before deadline will qualify

Many federal tax provisions are set to expire on Dec. 31, 2012, unless the U.S. Congress acts to extend the provisions past Jan. 1, 2013, or otherwise amends the provisions. Some of these provisions may enable you to support what you love at The University of Texas at Austin at a lower out-of-pocket cost.

During 2012 all taxpayers, regardless of the amount of their adjusted gross income, may claim all of their otherwise allowable itemized charitable deductions. But as the law is currently written, on Jan. 1, 2013, taxpayers whose adjusted gross income exceeds a specific dollar amount will lose part of their otherwise allowable itemized charitable deductions for every dollar that their adjusted gross income exceeds the specific dollar amount.

2012 is a great year to pay off multiyear pledges, to make several years' worth of annual gifts, and to make the gift you have always dreamed of making to The University of Texas at Austin. For those considering converting a traditional IRA to a Roth IRA, the extra income reported could be partially offset by the itemized charitable deduction without fear of losing some or most of the deduction.

Contact the gift planning team for information about the many ways you can support The University of Texas at Austin. You can contact the team at 866-488-3927 (toll free) or at 512-475-9632. ✨

This information is not considered tax, legal, or financial advice. Please consult your CPA, attorney, or other professional adviser before making any financial decisions.

TEXAS LEADER • SPRING/SUMMER 2012 • INFORMATION REQUEST FORM

Thank you for your interest in supporting The University of Texas at Austin. If you would like additional information, please visit giving.utexas.edu/giftplanning, call toll free 866-4UTEXAS (866-488-3927), email giftplan@www.utexas.edu, or complete this form and return it in the enclosed prepaid envelope.

Name: _____

Address: _____

Email: _____

Telephone: _____

I would like information about:

- Charitable gift annuities.
- Giving directly from my IRA.
- How to include UT Austin in my will.
- I have already included UT Austin in my estate plans.
- Other _____
- Please remove me from your mailing list.

Sample will language

Wondering how to include the university in your will?

Here's the language we suggest:

I hereby direct \$_____ (or _____ percent of my residual estate) in cash, securities, or other property to the Board of Regents of The University of Texas System for the benefit of The University of Texas at Austin.

This gift shall be for the further benefit of _____ [college, school, unit] _____ and shall be used to _____ [purpose] _____.

As with any decision involving your assets, we urge you to seek the advice of your professional counsel when considering a gift to The University of Texas at Austin.



COVER: Professor John Goodenough helped develop the rechargeable lithium-ion battery, but his contributions don't end there. He's also a donor to The University of Texas at Austin. Story inside.

TEXAS LEADER is published each spring and fall for members of the Texas Leadership Society and other alumni and friends of The University of Texas at Austin. To submit story ideas, comments, questions, and address changes, please use the reply form and enclosed envelope, call us toll free at 866-4UTEXAS (866-488-3927), or email giftplan@www.utexas.edu.

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