***AcademiCast* Transcript**
Texas Tech University
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Johnson: Hello and welcome to *AcademiCast* – Texas Tech University's biweekly podcast series from the Office of the Provost. I'm Sarah Johnson, and I'll be covering the top academic stories on campus. Later in the program, Provost Bob Smith will spotlight Integrated Scholar Andrew Jackson, a professor of civil and environmental engineering in the Whitacre College of Engineering.

And now, the news…

Texas Tech researchers are examining the brain's responses in financial decision-making. Personal financial planning professor Russell James leads the research project. He is focusing on charitable bequests, which constitute a key area of estate planning.

James: Fundamentally, we have sort of a first-stage goal and then other possibilities beyond that. The first-stage goal is very practical. It's about encouraging generosity and what are the steps through which we can encourage generosity in financial decision making.

Johnson: To gather data, Professor James interviews research subjects as they lie in a functional magnetic resonance imaging machine, or F-M-R-I. The machine records how the brain reacts when the professor asks questions about charitable giving.

James: And it turns out that what we're finding from the preliminary results is that the brain areas involved in current charitable giving – that is, "you want to write a $20 check?" – are very different from the brain areas involved in "would you like to leave 10 percent of your estate to the American Cancer Society or to Texas Tech University?" And so it turns out that this is the very first time that we've ever had that type of decision-making activity going on in the scanner.

Johnson: Professor James feels his research could provide insight about generosity and financial well-being. That's valuable information for the field of estate planning, and Professor James believes his research could also apply to broader economic issues. His research is funded by the Lubbock-based CH Foundation.

University researchers are also exploring a connection between childhood obesity and T-Vs. A study by Texas Tech and the Texas Tech University Health Sciences Center notes that children with televisions in their bedrooms are more likely to be sedentary, consume larger amounts of fast food, and have less encouragement to be physically active. These factors contribute to childhood obesity. Compounding the situation, most obese children continue to be overweight and suffer from weight-related health problems as adults. The study is part of a USDA wellness program targeted at low-income Hispanic children.

Students and faculty in the School of Art are enjoying their recently opened gallery in downtown Lubbock. The venue provides additional space for exhibitions and also strengthens Texas Tech's presence within the city's art community. The venue is located in the former police garages on Fifth Street, across from the Louise Hopkins Underwood Center for the Arts.

Andrew Jackson is a professor of civil and environmental engineering in the Whitacre College of Engineering. His teaching, research, and outreach efforts have earned him recognition as an Integrated Scholar. His work is spotlighted here by Provost Bob Smith.

Smith: Professor Andrew Jackson has always had a strong appreciation for the environment. His interest in ecology led him to earn a bachelor's degree in biology from Rhodes College in Tennessee. Yet Jackson faced scarce employment prospects in the area of biology. So he turned his attention to graduate school and the field of engineering.

Jackson: My professors all told me, "Ah there is no jobs in biology, it's oversaturated." But we had a graduate who went to engineering school and got an environmental engineering degree and I thought, oh that would be great because I can not only study the environment but I can do something to help the environment. So I went to grad school for environmental engineering then got my engineering degrees at the graduate level mainly because it allowed me to both keep my interest in the fundamental science and the environment, but also to study practical solutions that will actually help it.

Smith: Professor Jackson went on to earn his master's and doctorate in environmental engineering from Louisiana State University. Since coming to Texas Tech in 1998, Professor Jackson has taught a range of courses.

Jackson: In general, my courses that I'm kind of focused on are a graduate level unit processes course, which is basically why do things work? So we often times at the undergraduate level teach people how to solve a problem, we don't necessarily have the time to teach them the why behind how its solved, and that's my job in the course is to teach them they why. Then I teach an undergraduate course, Introduction to

Environmental Engineering, which is required course for all civil environmental engineers. It's a pretty large course, it's a survey course but it's still a lot of fun because it's the first time many of these students have learned anything about the environment or about how do you protect the environment or how do you keep the environment from being harmed. Other courses I have taught off and on are Waste Water Treatment, bi-ert mediation and anything else that's required that I have to.

Smith: Over the course of his 13 years at Texas Tech, Professor Jackson has conducted research on the effects and sources of perchlorate exposure and the treatment of wastewater during space exploration.

Jackson: I have two research thrusts that are very different. One of them is looking at ways to recycle water to enable human habitation and space. For the last eight or nine years we have been studying how to recycle wastewater back into drinking water from applications from Mars base or a Moon base. Primarily, we look at biological reactors to remove contaminants prior to polishing for drinking water. The other big area that I have been working almost as long on is perchlorate. Perchlorate is a chemical that's found both naturally and it's man made. It's the primary ingredient in solid rockets. Every time the shuttle goes up, they burn about a million pounds of it. And it can impact peoples' health, with anything with a thyroid. It basically inhibits iodine uptake into your thyroid, which can have serious consequences for newborns or adjusting fetuses because the thyroid basically controls mental development. So we were actually the first research group to show that there is a natural component that's found throughout the world and we have done some work on just about every aspect you can think of. Where it is? Why it's there? How does it form in the atmosphere? How does it get in plants? How does it get into the food chain? How do you get rid of it? You name it.

Smith: The research has earned Professor Jackson recognition by a number of his peers as a world expert in environmental engineering. His studies also enabled him to travel to Antarctica.

Jackson: Just last fall I went to Antarctica with a group from NASA. They found it on Mars and they were using Antarctica as a field site, as a surrogate for Mars. They invited me to go with them and we spent two weeks studying perchlorate exposure there. Mainly we were collecting samples to find out how much is there, where is it, how's it distributed and how old is it. But also, to collect samples for stable life top analysis, which helps us figure out how it was made. And then they will take that information and apply it to what we know about Martian chemistry and say, "Well this must be true in Mars if we found this here." So it has fairly big indications for potential life on Mars, which is out of my area, but its what these guys are looking at. So, it could impact that.

Smith: Service projects are also key to Professor Jackson's contributions. At Texas Tech he chairs several department committees and the College Tenure Committee, and he is an academic adviser. Professor Jackson serves the broader research community by

editing scientific journals and is a member of the Life Sciences and Systems Technical Committee for the American Institute of Aeronautics and Astronautics. He has also organized NASA's main life-support conferences. Indeed, with so many responsibilities of his own, Professor Jackson can understand how some faculty members can feel overwhelmed in their efforts to balance teaching, research and service.

Jackson: It can be a challenge; it's definitely a time-management issue. ... So I learn to get the most out of my time when you have time. And some of the activities are synergistic, so they actually help you do other things. ... Prioritize, start with the most important responsibilities and then add as you feel confident in the number of responsibilities you do have. Just be careful to not add too many that are just busy work because faculty often have the ability to take on a lot of busy work and you really got to learn to say no to that and say yes to some of the more important things. Making the most of your time and carving out time for the things that you really want to do is important. If your door is always open and there is no barrier, you are really never going to have time to do the things you got in this job to do.

Smith: That's valuable advice from Professor Jackson. He is able to lead by example through his contributions at the university and to the field of environmental engineering. These accomplishments help to distinguish him as a Texas Tech Integrated Scholar.

Thanks for listening!

Johnson: Thanks, Dr. Smith!

And finally, *AcademiCast* would like to recognize the more than 2,300 students who graduated from Texas Tech this semester. Congratulations, Red Raiders!

That concludes this edition of *AcademiCast*. Thanks for listening and join us again after the holiday break for the latest academic news from Texas Tech University. See you next time!