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# Research oriented

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## Research oriented

*Goldwater Scholars interested in plant ecology, DNA reactions*

Whether working in a lab with DNA chromosomes or trekking through a forest to observe an infestation of insects, two Furman students have found that their acumen for science can pay off in a big way.

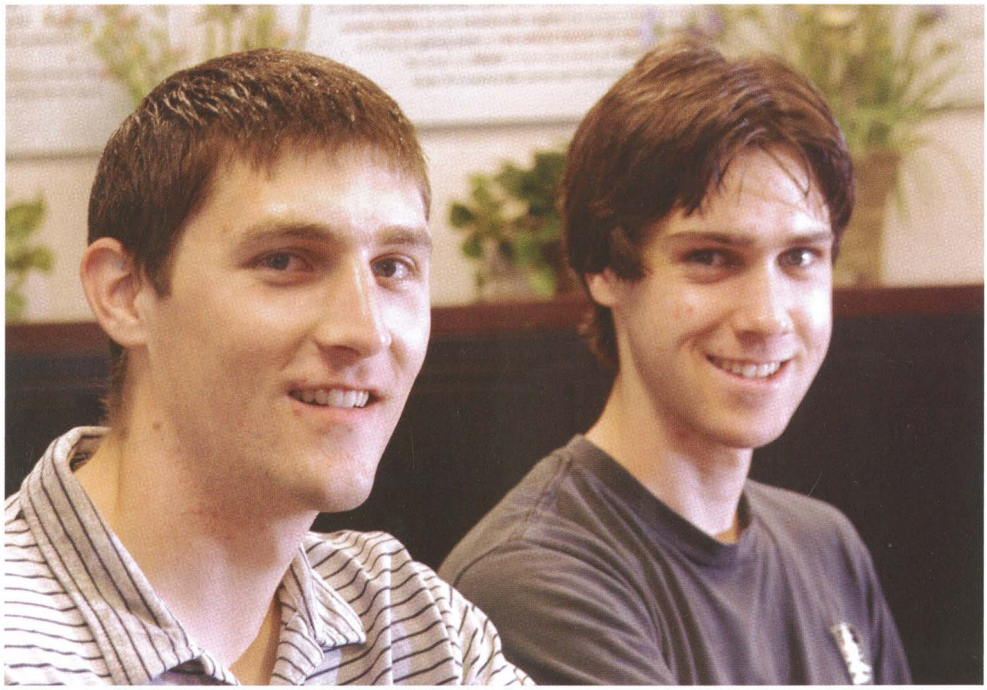
Senior Jess Riddle of Roswell, Ga., and junior Mark Turlington of Horse Shoe, N.C., are two of 310 students from across the nation to be awarded a 2004 Barry M. Goldwater Scholarship for excellence in science and mathematics. The prestigious scholarship, named for the late senator from Arizona, provides an annual stipend of $7,500 to cover the cost of tuition, fees, books, room and board.

Riddle, who holds a Furman honor scholarship and the Carolinas Foothills Garden Club scholarship, has conducted research that requires him to go "out on a limb" to investigate the Hemlock Woolly Adelgid. The insect, which is native to Asia, is now endangering Hemlock trees along the northeast coast of the United States. "They're a major threat to our ecosystems," he says. "I tried to get involved with efforts looking at control and monitoring of the insect."

Long interested in plants and insects and their effects on natural reserves, Riddle has pursued this research for a number of years. "I did a lot of research on trees outside of class on my own time," he says.

Through Furman's Individualized Curriculum Program (ICP), he has designed his own major, combining classes from the departments of biology, chemistry, earth and environmental sciences and mathematics into a curriculum he calls "Interdisciplinary Plant Ecology." He hopes to pursue a graduate degree in plant ecology.

Turlington, a chemistry major, was counseled by his advisor, Moses Lee, to apply for the Goldwater Scholarship. Turlington had worked with Lee in the summer of 2003, doing research on polyambic DNA and their reactions to proteins to increase the effectiveness of drug treatment to these cells.



***Mark Turlington (left) and Jess Riddle bring to 15 the number of Furman students who have been named Goldwater Scholars since 1986.***

"The DNA has minor grooves in them," he says. "The proteins and other things bind to those genes, regulating a lot of the genes. The polyamids are able to bind to the minor grooves in place of those proteins. The goal is that if you bind our drug there you can regulate gene transcription and translation and be able to control the cell and turn genes off and on."

Although their first summer of research produced limited results, he and Lee continued their work in the summer of 2004 and are encouraged by the progress they have made.

Both Turlington and Riddle agree that the university's emphasis on undergraduate research helped them earn the scholarships. "Furman has a good base of classes that I could take and apply to many areas. It's strong in multiple departments," says Riddle.

Turlington adds the Goldwater award to his string of scholarships, which include the James B. Duke, Robert C. Byrd and Dow Chemical. He says, "The chemistry department really takes an active role in ensuring every student has research opportunities. If I were at a big university, there's no way I would have ever entered a lab with a professor working one-on-one with me."

**— Jessica Taylor '07**

*The author, an English major from Elizabethton, Tenn., is editor of* The Paladin.