

CUR Fellows Address

Green Chemistry and Chemical Ecology

Full Power Point presentation at <http://www.cur.org/quarterly/webedition.html>

Tom Goodwin

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Dr. Tom Goodwin received a BS degree in Chemistry from Ouachita Baptist University in 1969 and a PhD degree from the University of Arkansas-Fayetteville in 1974. Following postdoctoral appointments at Rice and Texas A&M, and a short stint in chemical industry, Dr. Goodwin joined Hendrix College in 1978 as a junior faculty and moved through the ranks to become a Professor of Chemistry in 1993, the Elbert L. Fausett Distinguished Professor in 2004 and the Julia Mobley Odyssey Professor in 2008.

Dr. Goodwin has been recognized in a number of ways for his collaborative work with undergraduates. Recognitions such as the Carnegie/CASE US Professor of the Year, the Pfizer Green Chemistry in Education, and the Camille and Henry Dreyfus Foundation Scholar/Fellow awards are only three examples of his exemplary teaching practices. His philosophy about undergraduate research reflects his outstanding teacher/scholar character and is summed up in his own words: "Science is taught by doing science; the scientific method is inculcated by practicing it in the laboratory and the field. Discoveries, chemical reactions, anecdotes and methodologies from our research have long been incorporated into our regular lectures and labs. Discussions of elephant chemistry, green chemistry and environmental issues have become commonplace in my courses." Dr. Goodwin strongly believes that allowing students to "discover" science through meaningful experimentation is the best way to teach, and that undergraduate research is synonymous with chemical education. Because of his long-standing commitment to learning by doing, he was asked in 2003 to lead the task force that developed Your Hendrix Odyssey: Engaging in Active Learning, a component of the Hendrix curriculum that requires undergraduates to complete at least three experiential learning projects.

Over the last 31 years, Dr. Goodwin has mentored the research work of approximately 120 undergraduates, and lists student co-authors on the majority of his research publications. His high level of scholarship was evident from the start of his academic career, as indicated by one of his colleagues who said "Early in his first year on the faculty, Tom wrote successful proposals to support undergraduate research in

synthetic organic chemistry. Research in this area was widely believed at the time to be too difficult to carry out successfully with undergraduates. Tom's vision, passion and hard work soon led to student presentations at scientific meetings and multiple publications in leading peer-reviewed journals."

Dr. Goodwin's area of expertise is synthetic organic chemistry, and for many years that was his primary research focus at Hendrix. In 1993, he was the Chair of the Gordon Research Conference on Heterocyclic Compounds. Dr. Goodwin later developed a specific research interest in chemical communication among elephants which led to an NSF-funded collaboration with a behavioral biologist and a biochemist. This research has expanded to include collaborations with biologists to study chemical communication by other mammals, including maned wolves and several lemur species. Undergraduate students have benefited enormously from these collaborations. Because his research on chemical communication in endangered species occurs at the interface between chemistry and biology, Dr. Goodwin's students learn to think about chemistry as part of their natural world in a truly interdisciplinary manner. In addition to a continuing interest in mammalian chemical signaling and synthetic organic chemistry, Dr. Goodwin and his students have been involved for several years in the development of environmentally benign ("green") experiments for the introductory organic chemistry laboratory.

Over his career, Dr. Goodwin has secured research grants from private and federal funding agencies, including the Camille and Henry Dreyfus Foundation, Petroleum Research Fund of the American Chemical Society, Research Corporation for Science Advancement (RCSA), the National Science Foundation, and the National Institutes of Health. He has also taken numerous leadership roles to support undergraduate research endeavors. In addition to being a CUR Chemistry councilor for twelve years, Dr. Goodwin was a founding editor of the CUR-Q and the CUR President in 1992-1993. Although these accomplishments are truly exceptional, the impact in his students' careers is even more impressive. One of his former students, now a Biochemistry Professor at the University of Arkansas for Medical Sciences, said: "Put simply, Dr. Goodwin is dedicated to excellence in teaching, research and mentoring. He is very highly talented in all these areas and his influence will be felt by hundreds of students over the years." Another former undergraduate student wrote: "To put it succinctly, excluding my parents, Dr. Goodwin has been the most important influence in my career." And lastly, Dr. Goodwin's teacher/scholar efforts are best summed up by a Hendrix colleague who wrote: "Tom involves students in every aspect of his research – as well as encouraging their independent projects – for the same reason that Tom Goodwin does anything: It's the right thing to do."