In Memoriam:

David F. Ollis

CHEMICAL ENGINEERING EDUCATION LOSES A GIANT

David Frederick Ollis, University Distinguished Professor of Chemical and Biomolecular Engineering at North Carolina State University, passed away at age 82 on Friday, October 6, 2023.

Dave earned B.S., M.S., and Ph.D. degrees in chemical engineering from Caltech, Northwestern University, and Stanford University, respectively. He was on the chemical engineering faculties at Princeton University (1969–80) and the University of California at Davis (1980–84), joined the N.C. State faculty in 1984, and retired from active to emeritus faculty status in 2019. His research interests spanned biochemical engineering, catalysis, and photocatalysis, and his personal interests included gardening, painting, puzzles and games, and writing poetry when the mood struck him.

Over the course of his career, Dave wrote more than 140 journal articles and delivered more than 200 invited lectures in English and French, and his books and research papers have been cited more than 29,000 times. He is best known for the seminal textbook he co-authored with James Bailey, *Biochemical Engineering Fundamentals,* that initiated the current era in which biology and biochemical engineering are important pillars in chemical engineering education. His numerous awards include the Camille Dreyfus Foundation Teacher-Scholar Award, the University of North Carolina Board of Governors Award for Excellence in Teaching, and the National Science Foundation Director's Award, the highest honor bestowed by the NSF for excellence in both research and teaching.

Dave's prolific record of technical research and writing is well known in chemical engineering, but few people outside of his department know about his innovative contributions to education at both the graduate and undergraduate level. At the graduate level, Dave was an early advocate in developing courses and publishing the approaches and pedagogy to group mentor graduate students into and through the graduate research process. At the undergraduate level, one of many noteworthy examples is his creation of a "device dissection laboratory," designed to integrate hands-on, practical learning experiences into the traditional theoretical science- and mathematics-intensive engineering curriculum. The laboratory was equipped with several dozen familiar devices such as a CD player, digital camera, photocopy machine, and cell phone. For each device, teams of two or three students would read explanatory material, use the device, take it apart and reassemble it, analyze its performance, and teach other teams the principles and lessons they had learned.

Once Dave got the lab operating smoothly, he used it for about ten years as a setting for regular and honors first-year engineering courses, an orientation program for new engineering students in historically marginalized groups, and several summer technology outreach programs for high school students. He then went on to incorporate the lab into several new multidisciplinary courses. One taught in the Department of World Languages and Cultures called "Spanish: Language, Culture, Technology" followed the format of the engineering lab course except that the readings and presentations were primarily in Spanish; a second course taught jointly to students in the Colleges of Engineering and Design infused the lab with the traditional design studio culture and gave the students in each field insights into how their counterparts in the other field thought and worked; and a third course on technological literacy was taught to students in all fields outside of engineering.

People who worked with Dave Ollis or were taught by him have praised him for his intellect, warmth, kindness, and humility, and one who worked closely with him for many years called him "the most innovative educator I have ever met." His passing has left a void in engineering education, but his legacy will likely continue to inspire and enrich the discipline for years to come.

— by Richard Felder
Hoechst Celanese Professor Emeritus of Chemical Engineering
North Carolina State University