

## David F. Parkhurst

Professor David Parkhurst's career began in the early 1960s, when he worked at the Institute of Arctic and Alpine Research in Boulder, Colorado. Here he was immersed in engineering and applied mathematics. His love of plants began there, and he successfully launched into botany, applying his ever more sophisticated quantitative skills to the physics of gas exchange in leaves. In fact, his first peer-reviewed research paper appeared in the highly acclaimed international journal *Nature* in 1966. What an auspicious beginning—first author on a paper in one of the leading journals in science just *one year* after completing his Bachelor of Science in the Engineering College at the University of Colorado.

Dave's interests in botany and leaf physiology were refined further during a Fulbright year at the University of Melbourne in Australia. He returned to the University of Wisconsin, where he completed his M.S. and Ph.D. in botany. It is during these years that Dave had the opportunity to explore the exciting and challenging world of university teaching, the beginnings of what clearly has developed into a true passion for the scholarship of teaching and learning.

After completing his Ph.D., Dave returned to Australia, taking a position as research scientist in atmospheric physics at Australia's world-renowned government research institute, CSIRO. During this time he co-authored two papers in *Science* and another in the *Journal of Ecology*, both world-class peer-reviewed journals. In 1973 Indiana University and the newly formed School of Public and Environmental Affairs were successful in attracting this young mathematician/engineer/botanist to return to the United States. SPEA's young and rapidly evolving environmental science program was in its formative stages, and Dave had the perfect perspective to serve as one of its chief architects. Thus, Dave has dedicated his entire faculty career to serving the students and programs of SPEA and Indiana University.

While his intellectual home has been here at IU, Dave has taken many opportunities to study and work as a visiting scientist at a host of major labs. These include the Institute of Ecosystem Studies in New York, the Australian National University in Canberra, Oak Ridge National Laboratory, Argonne National Laboratory, the National Center for Atmospheric Research in Boulder, and the U.S. Environmental Protection Agency (EPA) in Washington, D.C. Over the course of his career Dave has advanced knowledge in several areas in addition to his work on gas exchange in leaves. These include critical reviews of statistical methods and appropriate quantitative treatment of environmental data. In particular, his careful assessment of the use (and misuse) of significance tests in environmental decision-making has had a major impact on the field. It is for this expertise that Dave has been consulted by such organizations as the EPA, the Indiana Department of Environmental Management, the New York City Department of Environmental Protection, and the Society for Environmental Toxicology and Chemistry.

While Dave's talents in quantitative methods are highly regarded, his intellectual investment in teaching has been truly exceptional. His influence on the Master of Science in Environmental Science (M.S.E.S.) program has made it one of the most rigorous in the nation. His applied math course E526 and his statistics course E538 are still mandatory for all M.S.E.S. students and are generally considered among the most, if not *the* most, challenging classes in the program. Time and time again, alumni have volunteered that "the Parkhurst courses" have benefited them the most in their careers. Recruiters and supervisors frequently comment on the fact that SPEA's M.S.E.S. graduates have superior quantitative skills when compared to many of their peers.

What sets Dave apart from many of his colleagues is his devotion to continuous improvements—right up to his retirement date—in the quality of his courses and in the effectiveness of his teaching. Dave was quick to incorporate Fortran programming into his applied math course when computers became mainstream in the '70s. Later he replaced Fortran by the more contemporary Matlab software. This process of following the times and keeping his course up-to-date is characteristic of Dave's attitude toward all his teaching efforts. If new materials or examples are suggested by the students, Dave is certain to investigate.

His open mindedness, however, does not make him a blind follower of the latest fashions. On the contrary, during his research in the field of environmental statistics it occurred to him that traditional hypothesis testing in environmental science and engineering was often biased toward showing “no adverse effects.” In contrast, the less commonly accepted Bayesian approach to hypothesis testing places the burden of proof on “no adverse effects,” which is more protective of the public and the environment. Although this is not the mainstream of statistical thinking, Dave inserted this approach into his required statistics course. He was ahead of the times as this more protective statistical approach is now gaining ground in the literature.

Dave has made a major contribution to the teaching mission of the university, not only through the way he affects his students, but also through his leadership on campus in a scholarly approach to teaching. About five years ago he was invited by the dean of the faculties to participate in the Scholarship of Teaching and Learning (SOTL) program. It developed “teaching portfolios,” documenting the scholarly foundation of a course well beyond the syllabus. Dave’s portfolio was one of the first to appear on a national Web-based repository of course portfolios.

Retirement is likely to change little in Dave’s full and productive life. He continues to be sought after by students, faculty, and professionals who value his counsel on all matters of applied mathematics and statistics. SOTL’s explicit goal is to “improve undergraduate learning by fostering faculty inquiry into learning and by building interdisciplinary communities that support and refine this inquiry.” Organizations such as SOTL will likely keep contact information for Professor David Parkhurst readily at hand. Dave Parkhurst is a deep thinker about all that he undertakes. He will remain a valuable resource to Indiana University and to his profession even as he seeks the best that retirement affords. We wish him the very best. But keep his e-mail address handy!

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