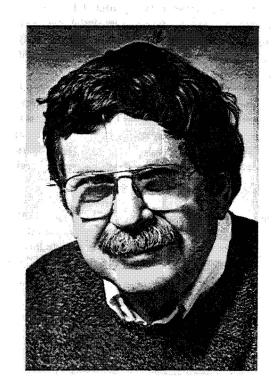# In Memoriam
Eugene L. Lawler

Eugene L. Lawler, aged 61, died of cancer on September 2, 1994. He is survived by his wife, Marijke, son, Stephen, and daughter, Susan, son-in-law, Matthew, and granddaughter, Janna Rose Surprise. He will also be dearly missed by his students, colleagues, and friends.

Gene obtained an A.M. at Harvard University in 1957, and his Ph.D. from Harvard in 1962. He taught at the University of Michigan in Ann Arbor from 1962 until 1970, and at the University of California at Berkeley since 1971. He combined an illustrious career of highly influential research with a history of dedicated service to both universities. Throughout his career, Gene was an active member of the theoretical computer science community and served on many conference and journal boards.

For more than thirty years, Gene Lawler had been studying algorithmic issues in combinatorial optimization. His contributions have been fundamental in giving the discipline the breadth and depth it has now attained. Of all of his work, his textbook *Combinatorial Optimization: Networks and Matroids* (1976) has had the most pronounced impact. It brought together the most important results in the area, and is notable for its lucid writing style. It gave new clarity to well understood and less understood results, brought the reader to the forefront of the field, and made the challenges of the future both apparent and accessible. The book *The Traveling Salesman Problem: A Guided Tour of Combinatorial Optimization* (1985), which he edited with three younger colleagues, also became a benchmark reference.

Gene's papers on branch-and-bound (with D.E. Wood) and dynamic programming (with J.M. Moore) are classics; the former, in fact, was selected as a citation classic in 1987. Both papers, rather than introducing radically new techniques, brought a new level of usefulness and understanding to important algorithmic paradigms. Since the mid-seventies, Gene was particularly interested in algorithms for project sequencing and scheduling. Prior to his work, the area was a rather unmathematical hodgepodge, with little systematic understanding of the types of methods and techniques that could be used most effectively. Gene's work stimulated and unified the area greatly. His main unfinished project is the completion of a graduate textbook on scheduling.

In the summer of 1988, Gene began serious work in computational biology at the Human Genome Center of the Lawrence Berkeley Laboratories, and remained active in this area until shortly before his death. His contributions include methods for construction of evolutionary trees (work done jointly with Tandy Warnow

and Sampath Kannan); a novel approximate pattern-matching algorithm, which has a sub-linear expected running time (done jointly with William Chang); a fast heuristic method for multiple sequence alignment, which establishes a continuous trade-off between the guaranteed level of optimality and the worst-case running time of the method (done jointly with Pavel Pevzner and Vineet Bafna); a fast heuristic algorithm, again achieving a provable trade-off between guaranteed levels of optimality and worst-case running time, for the problem of aligning sequences on a given tree to minimize total edit distance over the three (done jointly with Tao Jiang and Lushing Wang).

Gene had the foresight and wisdom to recognize the challenges and importance of computational biology well before the area became of general interest to the wider computer science community. Gene was particularly instrumental in bringing this exciting and important area to the attention of theoretical computer scientists. He organized a long-running seminar on computational biology at UC Berkeley that brought in speakers from across the country. He was the Ph.D. advisor of both Tandy Warnow and William Chang, whose work remains centered in this area. At the time of his death he was supervising three additional graduate students in computational biology.

Gene had an enormous influence on the atmosphere of the Computer Science Division at Berkeley. He never lost sight of the mission of a university and never backed away from difficult tasks. Gene was the social conscience of the Division. He helped the individual student fight the bureaucracy, reformed what the university taught and to whom it taught, and made the university a more humane and more stimulating place to study. This year he was awarded the Berkeley Citation, the campus's highest accolade.

Gene Lawler was a remarkable man, who was ready to discuss intelligently nearly any current issue and did so in a thought-provoking way. We will all miss him very much.

Dan Gustfield
David Shmoys
Jan Karel Lenstra
Tandy Warnow