

SEMINAR SERIES  
Department of Quantitative Analysis and Operations Management  
College of Business Administration  
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**March Madness and the Office Pool**

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**214 Lindner Hall**

March brings March Madness, the annual conclusion to the US men's college basketball season with two single elimination basketball tournaments showcasing the best college teams in the country. Almost as mad is the plethora of office pools across the country where the object is to pick a priori as many game winners as possible in the tournament. More generally, the object in an office pool is to maximize total pool points, where different points are awarded for different correct winning predictions. We consider the structure of single elimination tournaments, and show how to efficiently calculate the mean and the variance of the number of correctly predicted wins (or more generally the total points earned in an office pool) for a given slate of predicted winners. We apply these results to both random and Markov tournaments. We then show how to determine optimal office pool predictions that maximize the expected number of points earned in the pool. Considering various Markov probability models for predicting game winners based on regular season performance, professional sports rankings, and Las Vegas betting odds, we compare our predictions with what actually happened in past NCAA and NIT tournaments. These models perform similarly, achieving overall prediction accuracies of about 58%, but do not surpass the simple strategy of picking the seeds when the goal is to pick as many game winners as possible. For a more sophisticated point structure, however, our models do outperform the strategy of picking the seeds.

Edward H. Kaplan, PhD, obtained his BA from McGill University in 1977 with First Class Honors in Economic and Urban Geography. He proceeded to graduate study at the Massachusetts Institute of Technology where he completed three masters degrees (in Operations Research '79, City Planning '79, and Statistics '82) in addition to his 1984 doctorate in Urban Studies. He currently serves as Professor of Management Sciences at the Yale School of Management, Professor of Public Health at the Yale School of Medicine and Director of the Law, Policy and Ethics Core at Yale's Center for Interdisciplinary Research on AIDS.

Professor Kaplan is an expert in operations research and statistics who has developed novel methods for quantitatively evaluating HIV intervention programs. The author of more than 80 peer-reviewed publications, he co-edited the book *Modeling the AIDS Epidemic: Planning, Policy and Prediction* (Raven Press, 1994 with Margaret Brandeau). His applications of mathematical and statistical modeling to the study of HIV prevention were rewarded with the 1994 Lanchester Prize and the 1992 Franz Edelman Management Science Achievement Award, two of the top awards in the field of operations research. Professor Kaplan was twice awarded the Lady Davis Visiting Professorship at the Hebrew University of Jerusalem (School of Public Health in 1994, Department of Statistics in 1997) where he studied AIDS policy issues facing the State of Israel. His study of the public health consequences of Israel's ban on Ethiopian blood donors was reported on the front page of *The Jerusalem Post*. Kaplan's current research links the operations of HIV prevention programs to epidemic outcomes, examines the cost-effectiveness of individual intervention programs, and proposes approaches to allocating HIV prevention resources.

The subject of special reviews by the General Accounting Office, the Centers for Disease Control, and the National Research Council, his research demonstrating the effectiveness of New Haven's needle exchange program remains among the most creative and important examples of HIV program evaluation to date. Recognizing the public health impact of his needle exchange research in Connecticut, Kaplan was awarded the Connecticut Health Commissioner's AIDS Leadership Award in 1991, the New Haven Foundation's Ivy Award in 1991, and the Ira V. Hiscock Award of the Connecticut Public Health Association in 1997. His research has been cited numerous times by cities and states that have created legal needle exchange programs, and received widespread coverage in the media (including front-page coverage by *The New York Times* and an appearance on NBC's Today Show).

Professor Kaplan teaches courses in Policy Modeling, Operations Research, and Data Analysis and Statistics at Yale, where he received the Alumni Teaching Award from the Yale School of Management in 1991. He has also taught and/or held visiting appointments at MIT's Sloan School, the Technion-Israel Institute of Technology, the Hebrew University of Jerusalem, the Survey Research Center at UC Berkeley, the Kennedy School at Harvard University, and the College of Management at UMASS/Boston.

He is the Area Editor for Policy Modeling and Public Sector Operations Research for the journal *Operations Research*, and serves on the editorial boards of the *Journal of AIDS*, *Health Care Management Science*, and the *Journal of Mathematics Applied in Medicine and Biology*. He served on the Scientific Program Committee for the 12th World AIDS Conference in Geneva. Currently

he is on the Advisory Board of Carnegie Mellon University's Heinz School of Public Policy and Management, the Scientific Advisory Board of the American Foundation for AIDS Research, and the Institute of Medicine's Committee on HIV Prevention Strategies.