

NJIT prof sees 70 percent chance for Yanks to win the 2009 World Series

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NJIT's Bruce Bukiet, a mathematician who has applied mathematical modeling techniques to elucidate the dynamics of run scoring in baseball, has computed the probability of the Yankees and Phillies winning the World Series. He also has computed the most deserving of Major League Baseball's prestigious 2009 Most Valuable Player (MVP) and Cy Young awards.

Bukiet, a popular NJIT math professor, dives annually into such terrain in part for his love of the game, but also for his love of teaching and math. "Baseball can be a terrific learning tool," said Bukiet. "It demonstrates how math can be used to help us better understand the world around us."

With the World Series set to begin Wednesday night in the new Yankee Stadium, the model gives the Yankees a 70 percent chance of winning the series with most probable outcomes being a Yankees championship in 6 games (23 percent chance). The chance of them winning in 5 or 7 games is 19 percent each. The Phillies have a 30 percent chance to defeat the Yankees. Their best chance is a 10 percent chance to win in 7 games. To follow Bukiet's predictions see his frequent posts. m.njit.edu/~bukiet/baseball/playoffs09.htm .

Bukiet's method uses the 2009 regular season statistics for each player on each team's roster. He then applies a Markov Process approach to modeling production of runs in [baseball](#) games. Bukiet first presented this [mathematical model](#) in 1997 in Operations Research. His method

has been used for a number of purposes over the past decade, including predicting how many games a team should win in a season, the expected influence of trades, the value of wagering on a game and who is most deserving of Major League Baseball's most prestigious awards.

To determine the players most deserving of the MVP and Cy Young awards, Bukiet considers how many extra wins each player would have contributed to a team of otherwise all average players in his league based on his performance during the regular season. For hitters, this involves quantifying each player's offensive performance in the Markov Process framework in comparison to others who play the same position, while for pitchers the player's contribution is most heavily influenced by how well he has kept players off the basepaths over a large number of innings.

In the American League in 2009, the Minnesota Twins' catcher Joe Mauer's performance was worth more than 6 extra wins to an average team while New York Yankee shortstop Derek Jeter was the second best position player, contributing 4 wins. In the National League, Florida Marlin shortstop Hanley Ramirez deserves the MVP award, contributing 5.6 extra wins to an average team with St. Louis Cardinal first baseman Albert Pujols close behind at 5.4 extra wins.

Zack Greinke of the Kansas City Royals deserves the American League Cy Young Award, contributing 5.1 extra wins. Seattle Mariner Felix Hernandez's performance was worth 3.8 extra wins and Toronto Blue Jay Roy Halladay's was worth 3.6. In the National League, the Cy Young Award winner ought to be Tim Lincecum of the San Francisco Giants, whose performance would have contributed 4.6 extra wins to 4.4 by St. Louis Cardinal Chris Carpenter and 4.0 by Arizona Diamondback Dan Haren. "I understand that the sportswriters have no set guidelines as to the considerations that should be taken into account in voting for these award winners, so only around two-thirds of the time do they select one

of the top 3 contenders by the metrics we use," says Bukiet.

Source: New Jersey Institute of Technology

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