Business Prof Solves Traveling Umpire Problem for Major League Baseball

August 03, 2011

August 3, 2011 -- Scheduling umpire crews in Major League Baseball (MLB) can be a daunting task. However, Tallys Yunes, assistant professor of management science at the University of Miami School of Business Administration and his collaborators have created a novel solution. The team developed an efficient method to generate high-quality schedules for the MLB.

The study is titled "Scheduling Major League Baseball Umpires and the Traveling Umpire Problem" published online ahead of print by the journal Interfaces, a popular outlet for practitioners in the field of Operations Research.

The computational method was developed in 2006 by a team of scholars including Yunes, Michael Trick form Carnegie Mellon University and Hakan Yildiz from Michigan State University. MLB has used the new method in five of the past six seasons. This technique is more effective at respecting the MLB-imposed travel rules and restrictions, explains Yunes.

"We not only reduced the time necessary to create the schedule, we also improved the overall quality of the schedule, in the sense that it better satisfies both the MLB and umpire union rules," Yunes says.

The MLB season lasts six months. During that time, 30 teams play a total of 2,430 games in 27 different cities. The umpires in the league are part of a four-member group called a crew and each umpire handles about 142 games during the season.

Adhering to the myriad of regulations from the league can be difficult. To solve the problem, the team created a mathematical model called the "Traveling Umpire Problem," where given that an umpire crew should not be assigned to a team too often in short succession, and that an umpire crew should be assigned to each team at some time during the season; the task was to minimize the time and distance traveled by the umpires.

The model proved successful in generating a high quality schedule in a short amount of time. Prior to the new computerized method, the schedule was created manually on an Excel spreadsheet by a former umpire. The process would take weeks. Now, it takes just a few days to generate a good schedule.

"If you are the person trying to come up with the answer to this problem, you are limited in the number of solutions that you see," Yunes says. "By using a mathematical model that gets solved by a computer, we have opened up the universe of possible solutions."

About the University of Miami

The University of Miami's mission is to educate and nurture students, to create knowledge, and to provide service to our
community and beyond. Committed to excellence and proud of the diversity of our University family, we strive to develop future leaders of our nation and the world. www.miami.edu

The University of Miami School of Business Administration is a comprehensive business school, offering undergraduate business, full-time MBA, Executive MBA, MS, PhD and non-degree executive education programs. One of 12 colleges and schools at the University of Miami, the School is located in a major hub of international trade and commerce and acclaimed for the global orientation and diversity of its faculty, students and curriculum. The School delivers its programs at its main campus in Coral Gables as well as at locations across Florida and abroad. More information about the University of Miami School of Business can be found at www.bus.miami.edu.

------

Source: University of Miami

Copyright © 1994-2011 Tabor Communications, Inc. All Rights Reserved. HPCwire is a registered trademark of Tabor Communications, Inc. Use of this site is governed by our Terms of Use and Privacy Policy. Reproduction in whole or in part in any form or medium without express written permission of Tabor Communications Inc. is prohibited. Powered by Xtenit