1063-60-52   **Brandi Bailes** and **Jenny Switkes*** (`jmswitkes@csupomona.edu`), Department of Mathematics and Statistics, 3801 W. Temple Ave., Pomona, CA 91768. *Optimization in Baseball Lineups.* Preliminary report.

In major league baseball there is great emphasis put on star performers - finding them, rating them, paying them millions of dollars, and filling the starting lineup with them - with almost no attention given to optimization, statistically or economically. Here, we use the plethora of available baseball statistics to help resolve baseball's optimization conundrum. By using the statistic "Runs Created," based off a combination of several non-fielding baseball statistics, we attempt to find the weakest players who still create a strong enough lineup to meet a desired minimum expected winning percentage against an opposing team. Our work is heavily based on the paper "Quasigeometric Distributions and Extra Inning Baseball Games" by Darren Glass and Philip Lowry. Our contribution is in applying their ideas to optimize starting lineups, and in creating a MATLAB-based routine and user interface that sabermetric-minded managers could use in putting together their starting lineups. (Received July 27, 2010)