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**Marilyn Reba\*** (mreba@clemson.edu), Department of Mathematical Sciences, O-110 Martin Hall, Box 340975, Clemson, SC 29634, and **Doug Shier**. *Puzzles, Games, and Problem-Solving in Discrete Mathematics*.

For the last 10 years, we have explored several topics of discrete mathematics in an honors course for undergraduates. Our primary pedagogical approach has been to develop the representations, strategies, and algorithms used to solve puzzles and games and then to extend these techniques to real-world problems. In the realm of graph theory, we solve mazes and other puzzles and then move on to analyze social networks, GPS systems, DNA sequences, and kidney exchanges. In logic, we move from logic games and truth tables to building and simplifying digital circuits. Game theory is used to model soccer strategies as well as military applications. In probability, we explore lotteries and the misuse of conditional probabilities (e.g., in the media and in the courtroom). Another instructional strategy has been to ask students throughout the course to consider how these new problem-solving techniques might be applied to their own fields of interest. Groups of two to three students form teams to construct joint presentations that build, via a new application or a new algorithm, on what was covered in class. In addition to discussing some entertaining puzzles and their implications for problem-solving, we will report on the success and diversity of these end-of-semester projects. (Received August 28, 2018)