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Volume 13

Washington University  
Undergraduate Research Digest

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Spring 2018

### Streaming Enrollment in Early Child Care Centers Using Stable Matching

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#### Recommended Citation

Arora, Rishab; Burns, Julia; Crombie, Melissa; and Wu, Mo, "Streaming Enrollment in Early Child Care Centers Using Stable Matching" (2018). *Volume 13*. 8.

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# STREAMLINING ENROLLMENT IN EARLY CHILD CARE CENTERS USING STABLE MATCHING

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This project applies the classical stable matching algorithm in mathematics to early child care center enrollment. The “stable marriage” algorithm, first outlined by Gale and Shapley, gives an optimal stable pairing of men and women based on their rankings of one another. Such an algorithm is applicable here because for a center with multiple classrooms and age groups, “pairing” exiting and incoming students optimally is the key to achieving full enrollment. The primary aspects of our study are a discussion of the current problems with enrollment at University City Children’s Center, and the creation of precise “ranking” criteria by which the algorithm determines the best fit students. The modified algorithm in this study accounts for multiple possible cases of incoming students, depending on the ages of the children at the time they enroll. Our work streamlining enrollment is essential to daycare functioning because it ultimately improves the quality of student care. We are finding that this is a highly effective application of stable matching, and we hope to further develop our solution into a program easily usable by child care centers.