Robert Brignall, William Griffiths, Rebecca Smith* (rnsmith@brockport.edu), Vincent Vatter, Daniel Warren and Doron Zeilberger. *Almost avoiding classes of permutations.*

Define a permutation of length $n$ as an arrangement of the integers 1, 2, ..., $n$. A permutation $p = p_1p_2 \ldots p_n$ is said to contain a pattern $q = q_1q_2 \ldots q_k$ if there is a sequence $\alpha_1, \alpha_2, \ldots, \alpha_k$ such that $\alpha_1 < \alpha_2 < \ldots < \alpha_k$ and $p_{\alpha_i} < p_{\alpha_j}$ if and only if $q_i < q_j$. Otherwise, the permutation $p$ is said to avoid $q$.

There are several ways to consider “almost-avoidance” in terms of pattern avoidance. Past work has been done on counting permutations that contain a single copy of a given pattern. However, for this talk, when we say that a permutation almost avoids a permutation $q$, we will mean that one needs to remove at most one entry for the resulting permutation to avoid $q$ entirely. We also extend this notion to pairs of permutations. That is, a permutation almost avoids a pair of permutations if the removal of at most one entry causes the resulting permutation to avoid both of the given patterns $q_1$ and $q_2$. (Received September 17, 2007)