1067-05-1104 **Antonio Blanca*** (ablanca3@gatech.edu), 4390 Iroquois Tr., Duluth, GA 30096. *On Universal Cycles for new Classes of Combinatorial Structures.* Preliminary report.

A universal cycle (u-cycle) is a compact listing of a collection of combinatorial objects. In this paper, we use natural encodings of these objects to show the existence of u-cycles for collections of subsets, matroids, restricted multisets, chains of subsets, multichains, and lattice paths. For subsets, we show that a u-cycle exists for the k-subsets of an n-set if we let k vary in a non zero length interval. We use this result to construct a "covering" of length $(1 + o(1))\binom{n}{k}$ for all subsets of $[n]$ of size exactly k with a specific formula for the $o(1)$ term. We also show that u-cycles exist for all n-length words over some alphabet Σ, which contain all characters from $R \subset \Sigma$. Using this result we provide u-cycles for encodings of Sperner families of size 2 and proper chains of subsets. (Received September 18, 2010)