1042-11-109 **Lenny Fukshansky*** (`lenny@cmc.edu`), Department of Mathematics, Claremont McKenna College, 850 Columbia Avenue, Claremont, CA 91711. *Siegel's lemma outside of a union of varieties.*

Let K be a number field, $\overline{\mathbb{Q}}$, or the field of rational functions on a smooth projective curve of genus 0 or 1 over a perfect field, and let V be a subspace of K^N, $N \geq 2$. Let Z_K be a union of varieties defined over K such that $V \nsubseteq Z_K$. We prove the existence of a point of small height in $V \setminus Z_K$, providing an explicit upper bound on the height of such a point in terms of the height of V and the degree of a hypersurface containing Z_K, where dependence on both is optimal. A key tool required in the function field case is a version of Siegel's lemma with inhomogeneous heights. As a corollary of the method, we derive an explicit lower bound for the number of algebraic integers of bounded height in a fixed number field. (Received August 14, 2008)