1095-11-246 **Cassie L Williams*** (willi5cl@jmu.edu), James Madison University, Harrisonburg, VA. *Lattices of orders, conjugacy classes of matrices, and isogeny of abelian varieties.* Preliminary report.

An isogeny class of abelian varieties over $\mathbb{F}_p$ is determined by the characteristic polynomial of its Frobenius endomorphism, f. For elliptic curves, one can find a formula for the size of such an isogeny class by summing class numbers of members of a certain lattice of orders in a quadratic imaginary field. In 2003, Gekeler related a proportion of matrices with characteristic polynomial f to these class numbers, and thus to the size of a chosen isogeny class. To extend, we compute the analogous ratio of matrices in GSp_4 and find a relation to a ratio of class numbers in a quartic imaginary field. Then we use an appropriate lattice of orders and results of Everett Howe to work towards a formula for the size of an isogeny class of abelian surfaces. (Received September 10, 2013)