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James E Gossell* (jeg84240@ucmo.edu). *Non-unique Factorizations of Square Matrices*. Preliminary report.

While factorization in commutative semigroups has been well-studied, very little literature exists concerning factorization in the non-commutative setting. We will discuss factorization in certain subsemigroups of $M_n(\mathbb{Z})$, the semigroup of $n \times n$ integer-valued matrices with operation given by usual matrix multiplication. In particular, we will compute several important factorization-theoretic invariants. We also extend our study to $M_n(D)$ where D is any principle ideal domain. (Received September 24, 2012)