1035-M1-1702 **Henry J. Ricardo*** (henry@mec.cuny.edu), Department of Mathematics, Medgar Evers College (CUNY), 1150 Carroll Street (400-D), Brooklyn, NY 11225. *Getting Down with Determinants: Defining det(A) via the PA = LU Decomposition.*

As Sheldon Axler has stated, "Determinants are difficult, nonintuitive, and often defined without motivation." Nevertheless, most instructors introduce determinants in their undergraduate introductory linear algebra courses. After developing an understanding of Gaussian elimination and its variants, including a treatment of elementary and permutation matrices, I define the determinant of a matrix A in terms of the PA = LU factorization of A, which always exists. This connects the determinant with the application of the PA = LU decomposition to the solution of linear systems. Furthermore, standard properties of determinants follow with minimal notational or conceptual confusion. This approach avoids the necessity of introducing unmotivated minor/cofactor calculations, permutations, signed areas/volumes, or alternating multilinear functions as a student's first exposure to the idea of a determinant. Other interpretations and methods for evaluating determinants can be introduced later. (Received September 20, 2007)