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Brian Simanek* (brian.z.simanek@vanderbilt.edu), Department of Mathematics, 1326 Stevenson Center, Vanderbilt University, Nashville, TN 37240. *The Bergman Shift Operator on Weighted Spaces.*

Given a measure on a compact subset of the complex plane, let P be the closure of the span of the polynomials in the Hilbert space of square integrable functions with respect to this measure. The Bergman shift operator is the map of multiplication by variable, and maps P to itself. The matrix representation of this operator restricted to P takes the form of a Hessenberg matrix when one uses the basis for P consisting of the orthonormal polynomials. One is interested in describing this operator, especially by studying the limiting behavior of the matrix elements along the diagonals. We will discuss this phenomenon in several settings including the case when the measure is supported on an analytic region and the case when the measure is supported on a polynomial lemniscate. Some examples will also be discussed. (Received November 30, 2012)